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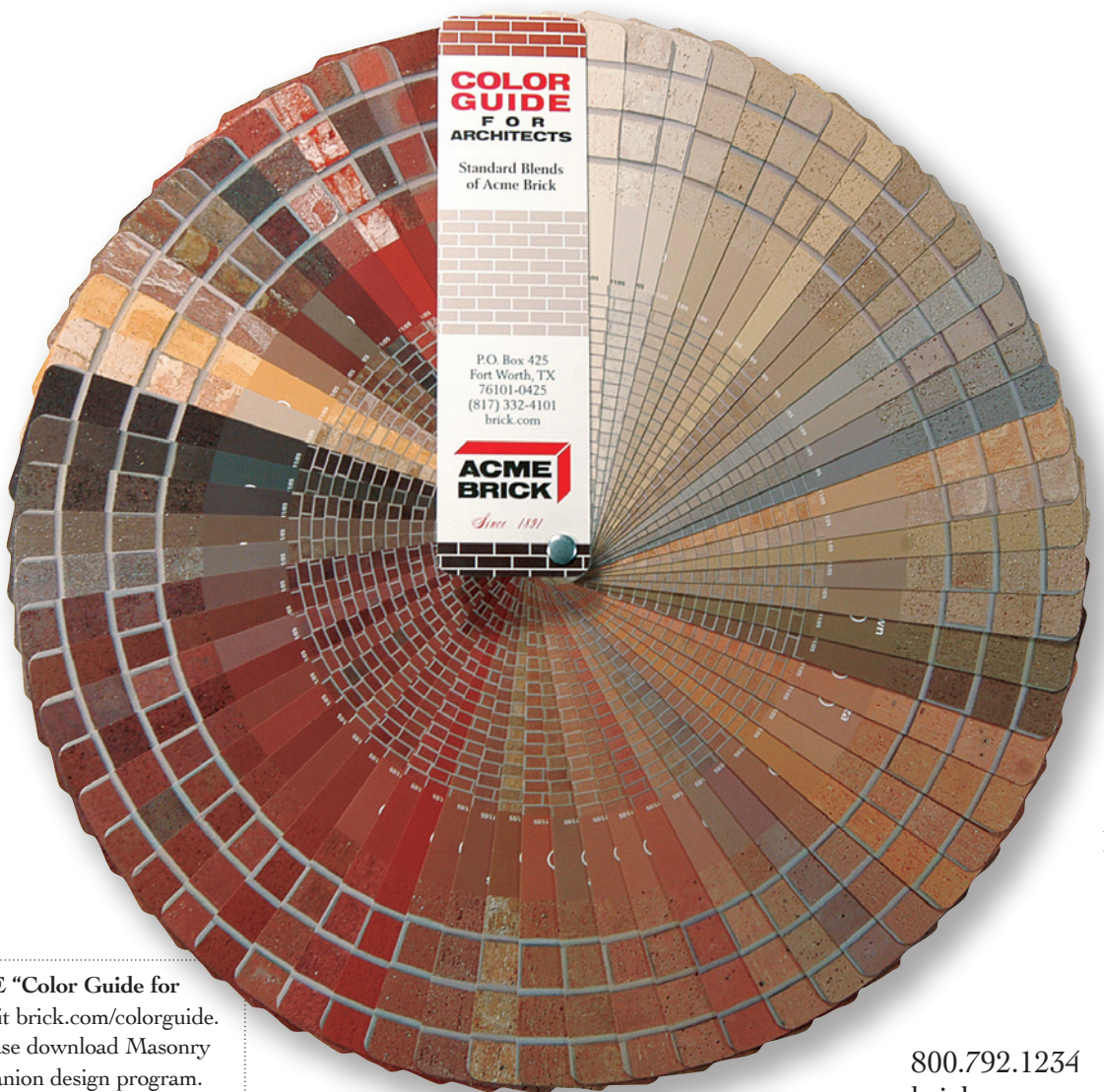

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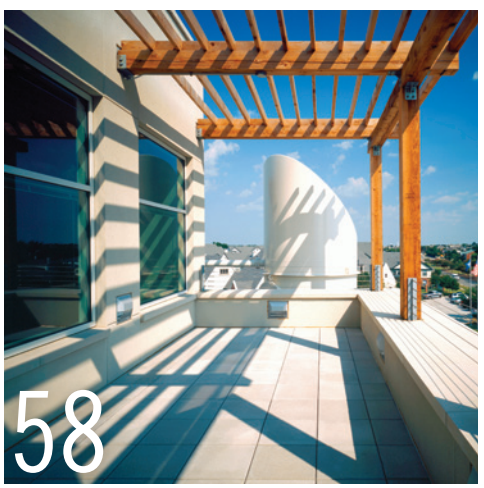

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50 Issues and Counting

AS A LONG-TIME CONTRIBUTING EDITOR AND TSA Publications Committee member and with more than twenty-five years of tenure, I have had great fun working with five editors of *Texas Architect*: Larry Paul Fuller, Joel Barna, Vince Hauser, Susan Williamson, and Stephen Sharpe. Each has had his or her own editorial interests, and together they have shaped *Texas Architect* into the respected and stimulating professional journal it is today.

Stephen is one of the longest tenured editors, with 50 issues to his credit, beginning with the Sept/Oct 2000 issue. As an architect, I know about schedules, deadlines, and deliverables, but somehow it still seems like magic when Stephen and staff deliver this publication to us every two months, on time.

A consummate journalist, Stephen gathers the latest information and adds meaning, context, and analysis. His keen understanding of architecture and design, knowledge of the business, and strong relationships with TSA members brings depth to the words on the page. In applying his sensibilities to the stories of architecture in Texas, he brings comprehension and appreciation of Texas architects' ideas and creations to all who part the covers of the publication. During his tenure, he has elevated *Texas Architect* to a truly "professional" stature, attracting an ever-widening stream of talented architect writers to bring us fresh insights on the Texas built environment. His exceptional leadership has also helped to inspire a clean graphic design that further contributes to a sense of quality.

This all sounds rather singular, but Stephen is actually a team leader, coordinating the energies of an always-independent, sometimes-fractious TSA Publications Committee, the far-flung contributing editors, the magazine staff, and numerous other professional contributors. How amazing and wonderful it is that all this comes together six times a year, each issue fresh and bright.

Texas architects are justly proud of the elevated standing of *Texas Architect* and of our editor who keeps it there. We trust that a mere 50 issues is just getting Stephen warmed up for a much longer run. To show our appreciation, I ask that everyone who reads this send a Letter to the Editor so we can fill Stephen's 51st issue with an over-abundance of praise (or at least honk when you drive by).

GERALD MOORHEAD, FAIA

Regulating High-Performance Design

Texas lawmakers have so far failed to mandate sustainable design standards for state-owned buildings

WHILE TEXAS' FIVE LARGEST CITIES HAVE adopted policies mandating sustainable design standards for their new public buildings, the Texas Legislature has yet to pass any similar laws governing state-owned facilities. That omission places Texas among the minority of states in the U.S. without measures aimed at reducing overall energy consumption and protecting our natural resources through high-performance architectural design. (When describing design as either "sustainable," "green," or "high-performance," the terms are generally interchangeable. But the definitions of "sustainable" and "green" are somewhat vague, while "high-performance" typically refers to architectural design standards that can be proven effective during post-occupancy operation.)

To date, according to the U.S. Green Building Council, a total of 31 states have laws or regulations intended to improve the energy efficiency of state-owned buildings and minimize waste during their construction. Many of those states, however, only recommend rather than require a measurable standard. But 18 states do set standards. A recent review of the USGBC's data indicates that those 18 states have enacted measures that require new state-owned buildings to achieve a minimum standard for high-performance design and construction. Most require LEED Silver or a comparable standard by another rating system. California adopted its requirement for LEED Silver in 2004. Lawmakers in that state took a much greater leap earlier this year when they passed the California Green Building Standards Code, which targets all new construction, public and private, to reduce water and energy use through landscaping, appliance efficiency, building design, and the use of recycled materials. Initially a volunteer program, the code becomes mandatory in 2010.

Efforts in Texas so far have failed to bring our state into the sustainable design fold. In early 2007, a high-performance buildings bill (SB 445) passed the Texas Senate but never made it out of committee for a vote on the House floor. SB 445 required state buildings and facilities for higher education to be designed and constructed to achieve high-performance building standards. The obstacle in the House committee was the bill's expected cost to taxpayers, with the committee focused solely on initial costs instead of savings over the project's lifecycle. The Texas Society of Architects tried to educate legislators to assuage concerns, but as the 80th Regular Session stumbled to adjournment TSA's lobbyists set their sights on the 81st.

During the interim between sessions, TSA has worked with Senator Rodney Ellis' Senate Government Organization Committee as the panel's staff prepares a report that will bolster arguments in favor of a new version of SB 445. "We are heavily involved in interim hearings and the development of interim reports that will include data projecting the long-term savings analysis for high-performance building standards," says Yvonne Castillo, a TSA staff lobbyist. She credits TSA's Sustainable Environment Committee (especially Brian Malarkey, AIA, of Houston, and Bob Harris, FAIA, of San Antonio) for providing significant information to be used in writing that report, which is expected to be issued before the end of this year.

A second bill geared toward sustainable design is planned as part of TSA's overall strategy for the session that convenes in January. The bill would enact a tax rebate incentive on re-use and preservation of existing commercial buildings – the ultimate sustainable practice – which currently penalizes owners with a sales tax on labor to renovate commercial property versus no sales tax on labor to build new commercial projects. TSA is working with Representative Joe Strauss to help draft the measure that is expected to use the federal Energy Star program as the required standard for energy efficiency.

STEPHEN SHARPE

PHOTO BY PAUL BARDAGJY COURTESY PAGE SOUTHERLAND PAGE

The Robert E. Johnson, Sr. Legislative Office Building in Austin represents one bright spot for high-performance design of state projects. Designed by Page Southerland Page and completed in 2000, it was the result of an initiative sponsored by the Texas State Energy Conservation Office.

Data used above is available at www.usgbc.org. *A searchable database is in the Government Resources section under "Public Policy Search."*

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More Comment on 'RFI Shootout'

As a construction administrator for almost 50 years for some major domestic architectural firms, I feel compelled to reply to the recent dialogue presented in your publication regarding RFIs. (See "Letter to the Editor" on p. 10 in Sept/Oct and "RFI Shootout" on p. 67 in May/June.) Over the years, I have encountered excellent contractors who demonstrated a keen sense of teamwork. I've also encountered unscrupulous ones only interested in their own bottom line. Those are the ones that I found to be writing RFIs in order to purposely extort money from the owner.

In the real world, there is no set of perfect construction documents. Architects strive to issue a complete and fully coordinated set of documents at all times. However, as pointed out, fees get too tightly squeezed, after all consultants have been paid and the quality of documents start to suffer. I strongly believe that architect's fees are set too low.

Back to the subject of RFIs. I believe that I have seen them all. The most innocent ones are asking the architect to respond to items clearly shown on the documents by a contractor too lazy to look for himself. RFIs pertaining to construction means, sequences, and techniques should be returned unanswered. Very few contractors offer suggestions on how to resolve the question asked. The latest trend in the industry is for the contractor to present a Change Order because the response to a certain RFI constitutes "additional work not anticipated." Some RFIs are written as a direct result of the contractor's lack of planning, including my favorite, requesting a same day response by the painter being on site with paint brush in hand asking for a paint color clearly shown on the Color & Finish Schedule.

Contractors have a rare opportunity to clear up discrepancies in the documents by pointing them out to the architect during the bid process. Addenda are an excellent vehicle to respond to inquiries by clarifying conflicting information that may exist in the construction documents.

The second time contractors have an opportunity to clarify their intentions is at the time of signing a contract with the owner. A Qualification Statement outlining specific clarifications and/or exclusions is normally part of the process. Again, the current trend is for this statement to be nonexistent or being very short on substance.

Contractors profess to be experts in erecting a variety of buildings and structures. On any project, they are required to familiarize themselves fully with the construction documents and are obligated to report inconsistencies found to the architect. They are to complete the project adhering to the contract amount, within the time stipulated and execute the work in a first-class workmanlike manner. It is unnecessary for contractors to search for errors, discrepancies, inconsistencies, or omissions in the contract documents unless they are specifically interested in creating a separate profit center. Such actions are easily discovered early on and do not make for a pleasant relationship within the team.

Jack Amschwand
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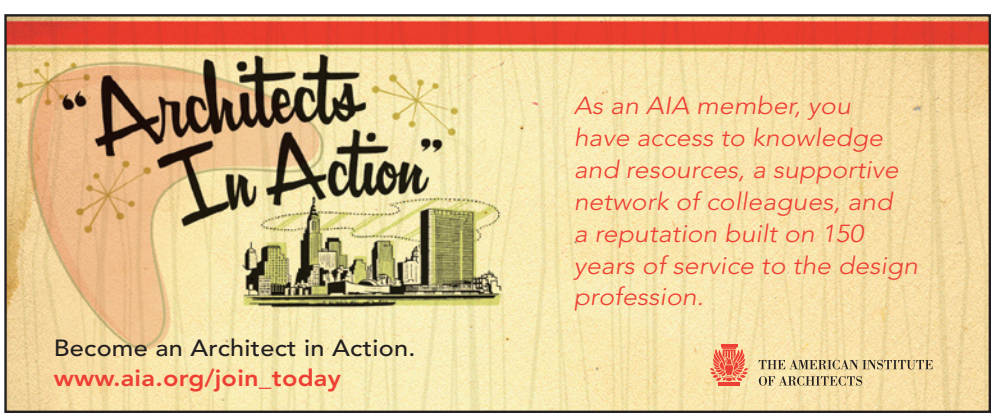

Gulf Coast Slowly Recovers After Ike

In early October, residents of the Texas Gulf Coast were still cleaning up debris left behind by Hurricane Ike. When the hurricane slammed into Galveston Island as a Category 2 storm on Sept. 13, homes and businesses along the Texas and Louisiana Gulf Coast were destroyed, and millions of people were left without power. As of Oct. 7, hundreds were missing and the death toll was 36, a number that may continue to rise. Hours after making landfall, the fifth hurricane of the 2008 season headed inland as a dangerous tropical storm, and President Bush declared 29 Texas counties and parts of Louisiana major disaster areas.

In the aftermath of Ike, the architectural community banded together on a local and national level with financial assistance and volunteer efforts. The American Institute of Architects has committed at least $50,000 to AIA Houston to set up and staff a disaster action response office in downtown Houston. Under the direction of AIA Houston Executive Director Barrie Scardino, a three-person team was hired to coordinate and train registered architects to perform free property damage assessments for single and multi-family homes damaged by Ike's powerful winds, rain, and floodwater.

The Texas Society of Architects, operating under its nonprofit subsidiary Disaster Action Inc. (DAI), created a Web site forum to connect architects displaced by the hurricane with donations of free, temporary office space. DAI will also share a portion of two financial donations from AIA Boston and AIA Oklahoma with the AIA Houston office to aid in local efforts. In addition, the National Trust for Historic Preservation, based in Washington, D.C., offered financial assistance to the Galveston Historical Foundation and posted a call for volunteer engineers and architects to help with condition assessment and recovery efforts.

Because Galveston is built on a barrier island, it is extremely vulnerable to major hurricanes, leaving the city's nineteenth-century buildings defenseless against a storm like Ike, which brought maximum sustained winds of 110 mph and an 11-foot storm surge. Galveston shouldered a significant amount of destruction, losing power capabilities, water, and gas, and enduring sizeable water and wind damage. Up the coast, across Galveston Bay, entire neighborhoods were destroyed on Bolivar Peninsula.

About 30 miles inland, the storm surge pushed up through Galveston Bay, flooding neighborhoods near Johnson Space Center and submerging Kemah Boardwalk at the mouth of the bay, an area surrounded by million-dollar homes. Sixty miles inland, streets in downtown Houston were littered with glass and debris. The city's tallest skyscraper, the 75-story JP Morgan Chase Tower, had many of its windows blown out; the popular 40-year-old restaurant Brennan's was destroyed by fire; and the University of Houston's College of Architecture sustained major damage when part of the roof was blown off and rain flooded the architecture and art library.

UH's College of Architecture building sustained major roof damage during Hurricane Ike.

Houston's major art museums held their ground against Ike. The Museum of Fine Arts, Houston, reported no artwork inside the museum or on the campus was damaged or affected. Rienzi, the MFAH's center for European decorative arts, and Bayou Bend, the former home of Ima Hogg that houses her collection of American decorative arts, both lost a number of trees, but there was no damage to the buildings or their contents. The Contemporary Arts Museum fared well, as did The Menil Collection, which suffered no damage to its buildings or artwork. The Menil is engineered to withstand a Category 5 hurricane.

In preliminary assessments, the Galveston Historical Foundation reported that damage to historic sections of town was not as severe as initially predicted, however officials estimated that 1,500 of 7,000 documented historic properties sustained significant damage. Two days after Ike, GHF's Executive Director Dwayne Jones announced some of the following observations of Galveston's historic architecture:

- The GHF's headquarters, the 1861 Custom House sustained the worst damage; the entry level of the building flooded with over eight feet of water, causing serious damage to archives, equipment, inventory, and other important documents.
- The National Historic Landmark district, the Strand, was swamped with close to 10 feet of water. Peter H. Brink, senior vice president of programs for the National Trust for Historic Preservation, stated that the historic neighborhood would most likely need the most work to rid the area of water and mud and to prevent the formation of mold. Brink suspected that a complete demolition and rebuilding of the area would not be necessary.
- The 1877 Elissa, the island's famous three-masted sailing ship, survived relatively unscathed. However, the adjacent Pier 22 and the Texas Seaport Museum both buckled under wind and water pressure.
- The 1857 Italianate mansion Ashton Villa, located at 24th and Broadway, endured as much as 18 inches of flooding on the first floor and lost several windows on the second floor from strong winds, allowing rain to pour inside and harm interior furniture and flooring.
- The Bishop's Palace, also known as the 1889 Gresham House, cited by AIA as one of the most important buildings in America, was subjected to nearly three feet of water on the first floor, but it emerged otherwise unscathed, as it did in the Great Storm of 1900.
- The 1907 Galvez Hotel tolerated one to two feet of water in the basement. The building was in otherwise good condition after the storm.
- Other historic properties that survived the storm with little injury include the 1880 German dancing pavilion "Garten Verein," the Galveston County Historical Museum, the 1859 St. Joseph's Church, and the two oldest buildings, the 1839 Samuel May Williams house and the 1838 Michel B. Menard House.

Hurricane Ike was a storm almost as large as Texas itself, with estimates of $11.4 billion in damages to Texas, including $16 million in Houston and an additional $2 billion in Galveston.

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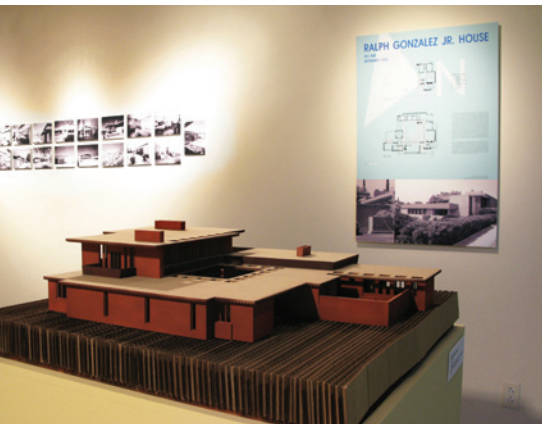

Modernism for the Borderland Exhibit Highlights Houses by Garland and Hilles

EL PASO Even two decades after architect Bill Palmore left his hometown of El Paso, a set of mid-century houses by two local designers still lingered in his memory. Later, as a professor of architecture at New York Institute of Technology (NYIT), Palmore revisited those modest residences and was struck at the exceptional integrity of the work of late El Paso architects Robert Garland and David Hilles.

Palmore's inquiry has surfaced as *Modernism for the Borderland: The Mid-century Houses of Robert Garland and David Hilles*, an exhibit at the Stanlee and Gerald Rubin Center for the Visual Arts at the University of Texas at El Paso. After closing on Oct. 11, the exhibit traveled to UT Austin's Mebane Gallery in Goldsmith Hall. *Modernism for the Borderland* features seven models of the architects' residential work built by Palmore's students, along with informational panels, a materials board, and original plans and drawings by the architects. Complementing those pieces is a series of photographs by the architectural photographer Julius Shulman, who visited and photographed several of the homes in 1961. The Shulman photographs are used as didactic materials in the panels and accompanying exhibition catalog, and show the houses in a pristine desert landscape, unscathed by the rapid development that would soon follow.

Weeks into the show, on Sept. 19, a lecture by Lawrence Speck, FAIA, a professor at UT Austin's School of Architecture, attracted standing-room-only crowd—a surprising level of interest and excitement over the work for which nostalgia and scholarship alone cannot account. The 125-seat lecture hall was filled with a lively mix of family and friends of Garland and Hilles, including builders and other collaborators on the houses featured in the show, architects and architecture students from El Paso and neighboring Juarez, and a surprising number of lay people from the community at large. Many of these individuals came with personal memories of growing up in or around the houses, but many more were discovering the work of these mid-century modernists for the first time. Literally hundreds of people turned out the following day as well, to tour three of the homes that were open to the public as part of the Rubin Center exhibition programming. Perhaps the groundswell of public interest in an architecture exhibit reflects change in the collective consciousness about how our sense of self should be expressed in our homes.

With a Garland and Hilles home, the "success object" that the client commissioned was the progressive thinking of the design itself. Though these architects emerged from a conservative culture, they created a politically liberal object grown out of new school curricula, (namely, Harwell Hamilton Harris's UT Austin and Yale), the postwar boom, and the high-desert climate and geography of El Paso. Garland and Hilles's forms are populist: they express access, invitation, equanimity to nature, and suburban playfulness. While the homes have similarities to the work of Wright, Neutra, and Schindler, they refuse to make formal statements that a newly minted upper class empirically requires. Instead, these homes are paeans to the glamorous new middle class, with non-hierarchical entries leading to interiors perfect for a steady flow of people, breezes, cocktails, and kids. Inside and out, the houses form spaces that are modern and open yet intimate. Garland and Hilles manipulated warm palettes of red brick, dark woods, cork, and copper in modernist ways to create spaces that embody a sense of cool. While there are signature elements that Garland and Hilles' houses share, each residence has particularities in detail. The Grossman house—made of masculine, red brick wall masses and heavy overhangs with deep fascia—uses whimsical plastic sheets laminated with butterflies and gold flecks to separate living and dining areas. The otherwise rectilinear, service-oriented kitchen is centered with a sociable amoeba-shaped island.

Modernism for the Borderland also speaks to another dimension: the making of an ideal practice. Garland and Hilles' clients gave them carte blanche and high fees to create, in Speck's words, "the best of what architecture is about." Their clients were so well charmed that they "trusted the architects, as professionals, to do the job right," giving the architects the privilege to practice thoughtful design. At a time when modernist homes followed a formula and cheap energy reduced buildings to envelopes, Garland and Hilles developed organic, responsive forms. Homes are set into difficult granite slopes, rooms are formed around excavated courtyards, very deep overhangs shade glass walls at just the right time of day so as to use modern language with integrity. In addition, the homes honor El Paso's challenging seasons and are crafted with sentiment to the particular lives they held and the materials of the area. Fifty years after they were built, these buildings continue to teach important lessons about good design.

During El Paso's infrastructure boom in the 1960s, Garland and Hilles diverged from residential work, and in doing so left a gap in the city's built history that has been in-filled with decades of uninspired suburbia. Of over two dozen Garland and Hilles homes produced, 22 still exist. Seven of these are in good enough shape to have been studied and presented in the exhibit. The 12-page catalog for the Modernism for the Borderland is a lovely object itself. Palmore's narrative and Shulman's photography help to explain why, when a building gets visual and philosophical modernism down so thoroughly, it can seem like a spiritual awakening. Much more than nostalgia dressed as advice, the booklet conveys the full thrill of a new discovery.

LAURA FOSTER KISSACK, AIA

Modernism for the Borderland *will be on display through the first week of November in the Mebane Gallery in UT Austin's Goldsmith Hall. The exhibit catalog is available through the Rubin Center* (rubincenter@utep.edu).

PHOTOS COURTESY THE RUBIN CENTER

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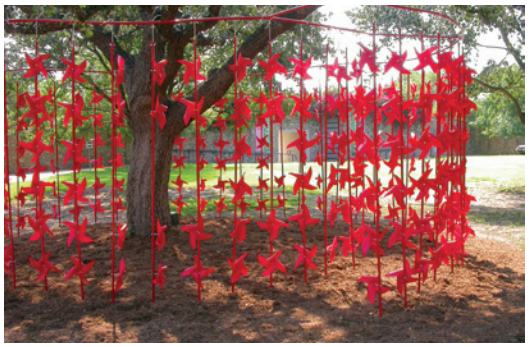
Designer Treehouses on Display At San Antonio Botanical Garden

SAN ANTONIO Treehouses have touched most of our lives in one way or another. Who doesn't feel nostalgic when recalling the thrill of building a clubhouse in the branches or dreaming of living in the leafy canopy like the heroes of the movie Swiss Family Robinson. Human nature seems to have an engrained concept of climbing in and lying under trees—we're attracted to the beauty and sheltering aspect of nature. The San Antonio Botanical Garden, whose mission is "connecting people to the plant world through experience, education, and research," played on this natural tendency by holding its *Terrific Treehouse* competition in partnership with AIA San Antonio and the City of San Antonio Parks and Recreation Department.

The goal of the competition was to create inspirational, magical, and creative treehouses that would capture the imagination of the community and the young at heart, no matter what age. Several of the entries were by local architects and designers as well as several by area families and children. A panel of nine judges, from various backgrounds, selected the winning entries. Committee members included an architect, a parent, a student, a Botanical Society board member, a community representative, a marketing expert, and members of the Botanical Garden staff. Out of numerous ideas submitted, nine were chosen to comprise the *Terrific Treehouse* exhibition that opened Aug. 30. *Terrific Treehouses* will remain on display through Dec. 7 at the Botanical Garden, 555 Funston Place.

Each of the nine treehouses chosen was built on site through collaborative efforts of the designers, family and friends, and local businesses. Potential building sites were identified within the Botanical Garden's grounds, each with specific trees selected by the nine treehouse designers.

"I have experienced the excitement that treehouses bring to a public garden setting and to the faces of the visitor," recalled Bob Brackman, director of the San Antonio Botanical Garden, who organized a similar exhibit in 2002 for the Cheekwood Botanical Garden and Museum of Art in Nashville. "The imagination of the design community is endless. There are no two treehouses the same. I especially enjoy seeing the combination of this creative talent into the natural beauty of our trees at the Garden."



The Windcatcher

Bamboo Pavilion

Inspirational Treehouse

Re-born

The *Terrific Treehouses* lineup is as follows:

- **The Windcatcher** (by Emily Chappelear and Rodrigo Rivera) is a fence-type structure surrounding the tree created out of colorful pinwheels that stay in constant motion with the wind.
- **Re-born** (by José Balboa) is created out of reclaimed material from a demolished horse barn, placed over the aqueduct of the Garden, giving visitors a spectacular view of San Antonio.
- **Flower Fort** (by Kristen and Jeff Fetzer, AIA) is based on the hibiscus logo of the Botanical Garden, with benches placed inside and outside of the fort so visitors can read about the insects featured on the panels of the walls.
- **Aeolian Treehouse** (by David Strahan, AIA) is fashioned from metal tubing and string with a canopy of "leaves" that amplify the harp-like sounds coming from the structure.
- **Bamboo Pavilion** (by Kristin Wiese, AIA, and Mia Frietze) is created out of movable bamboo panels that visitors are free to move as they pass through the structure, creating a different image of the treehouse as the day goes by.
- **Inspirational Treehouse** (by Nadia and Francisco Zarate, AIA) is based on the principles of feng shui that will protect its visitors, with a large canvas membrane along with natural materials that creates a serene place to collect one's thoughts.
- **Magic Treehouse** (by Hanna Hughes and parents, Shawn and Xochitl Hughes) is inspired by the Magic Treehouse book series, built to resemble a rocket ship where imagination can soar and the heart can learn to believe in the unimaginable.
- **Greek Revival Sandbox** (by Gabriel Orlando Juarez) takes cues from that architectural period, giving visitors a place to interact with the playfulness of a sandbox juxtaposed by the folly itself.
- **Our Green Treehouse** (by Lina Luque) is designed to demonstrate sustainable concepts, such as water collection (rain collection gutters) and energy harnessing (photovoltaic panels).

Additional support was provided by the Robert J. Kleberg, Jr. and Helen C. Kleberg Foundation; Gretchen Swanson Family Foundation; Valero Energy Corporation; the USAA Foundation, a Charitable Trust; RDM Group, LLC; Nathalie and Gladys Dalkowitz Charitable Trust; Ford, Powell & Carson; Bartlett Cocke General Contractors; and the Sabinal Group.

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AIA Dallas Presents Design Awards

DALLAS Ten local architectural firms, plus a student design studio from the University of Texas at Arlington, earned top honors Sept. 18 at AIA Dallas' 2008 Design Awards presented in an open-air ceremony on AT&T Plaza at Victory Park.

World-renowned jurors from New York, Los Angeles, and Chicago cited the Dallas architectural community for its attention to sustainability, outreach to global markets, and "the immense elegance of simple, humanist design." The jury selected from a total of 116 entries. Jurors noted that at least one-third of the entries were designed for international clients in countries including China, Korea, Kazakhstan, Dubai, Spain, and Portugal.

Speaking on behalf of the jury, Richard Clarke, AIA, noted that they responded to authenticity in evaluating the range of projects submitted for this year's awards. "Preferring simplicity, minimalism and visceral heart to 'more design,' we discovered a surprisingly classic modern theme among the strongest work in this year's submissions," Clarke said. The jurors called attention to their findings that there were more "small" (under 50,000 square feet of finished space) projects than large and that the more refined work was generally found in the smaller projects. "We noted," Clarke added, "that there was little conceptually oriented work; rather, we found more of a focus on the craft of building, especially in a modern tradition."

Topping the list of award winners was **2401 Douglas Avenue** by Ron Wommack, FAIA, which earned both Best of Show and the program's only Honor Award. "His disciplined use of simple materials creates a poetic series of spaces that could serve as a museum as easily as a house," jurors said.

Merit Awards were presented to the following eight projects:

- **Campus Gateway Dwelling** by HDR, a project planned in Braga, Portugal, to house students and researchers at the International Iberian Nanotechnology Laboratory;
- **Courthouse in Madrid, Spain**, by Fernando Teruya Architects, an unbuilt entry;
- **House on Cedar Hill** by Cunningham Architects, a lakeside residence recalling contemporary design of the 1960s reinterpreted with state-of-the-art materials and natural stone;
- **Light & Sie Gallery** by Laguarda Low Architects, an adaptive reuse design for a warehouse space in the Dallas Design District;
- **One Arts Plaza** by Morrison Seifert Murphy, a mixed-use high-rise in the Dallas Arts District;
- **Pilates Studio** by Susan Appleton, AIA, the reuse of an existing residential carport space;
- **Tube Dwelling**, another unbuilt project also designed by HDR for students and researchers at the International Iberian Nanotechnology Laboratory in Braga, Portugal; and
- **White Rock Filter Building and Basin Boathouse at White Rock Lake** by ARCHITEXAS, adaptive reuse design for an existing complex.

One Citation Award was presented to an unbuilt entry, the futuristic **Gateway to L.A.** parks and bridges system designed by RTKL.

In addition, the jury selected the following projects for specific recognition:

Holding House – Brent Brown, AIA, his colleagues at Buildingcommunity WORKSHOP, and a group of architecture students from The University of Texas-Arlington won both the Community Design Award and the Urban Edge Excellence in Sustainable Design Award for their 698-square foot Holding House on South Dallas' Congo Street. The simple structure is designed to provide temporary shelter for one family at a time in a neighborhood where every house is being renovated. This winner also achieved LEED™ Gold status from the U.S. Green Building Council.

Joule Hotel – The Jurors' Choice Award was presented to ARCHITEXAS for the Joule Hotel in downtown Dallas, which judges cited for the polished restraint of the building's historic exterior topped by the clear, cantilevered rooftop pool overlooking downtown pedestrian traffic.

Jurors for the 2008 AIA Dallas Design Awards were:

- Richard Clarke, AIA—Award-winning architect for Dallas' Federal Reserve Bank;
- Edward Keegan, AIA, editor-at-large for *Architect* magazine and a contributing editor for *Chicago Architect*;
- Dr. Andres Lepik, curator of architecture and design at the Metropolitan Museum of Art;
- Thom Mayne, FAIA, 2005 recipient of the Pritzker Prize, the world's highest professional honor for architects, and designer of Dallas' Perot Museum of Nature and Science; and
- Victoria Meyers, AIA, New York-based architect and designer of Dallas "See-Thru House" in Urban Reserve.

AIA DALLAS STAFF

2401 Douglas Avenue

Holding House

Joule Hotel

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Architecture Lecture Series at Umlauf

Austin's Umlauf Sculpture Gardens presents Mell Lawrence, FAIA as the November keynote speaker of the Architecture Lecture Series. For more information, visit *www.umlaufsculpture.org*. NOV 6

'Canstruction Houston 2008'

The Houston Chapter of the Society for Design Administration presents a design/build competition using canned food items. Proceeds benefit the Houston Food Bank. For team and sponsorship details, visit *www.canstruction-houston.com*. NOV 8

AIA Dallas Tour of Homes

The second annual AIA-sponsored Dallas Tour of Homes will showcase single and multi-family homes designed by Texas architects. For more details, visit *www.hometourdallas.com*. NOV 8-9

UT Austin Presents William Storrer

William Storrer, visiting lecturer, speaks at UT Austin School of Architecture on "The Rediscovering Wright Project." Visit *www.soa.utexas.edu* NOV 17

Buffalo Bayou Walking Tour

Architecture Center Houston and the Buffalo Bayou Partnership host the Buffalo Bayou Walking Tour, showcasing historic and modern architecture in downtown Houston. For more information, visit *www.aiahouston.org*. DEC 5

DAF Fall Lecture Series

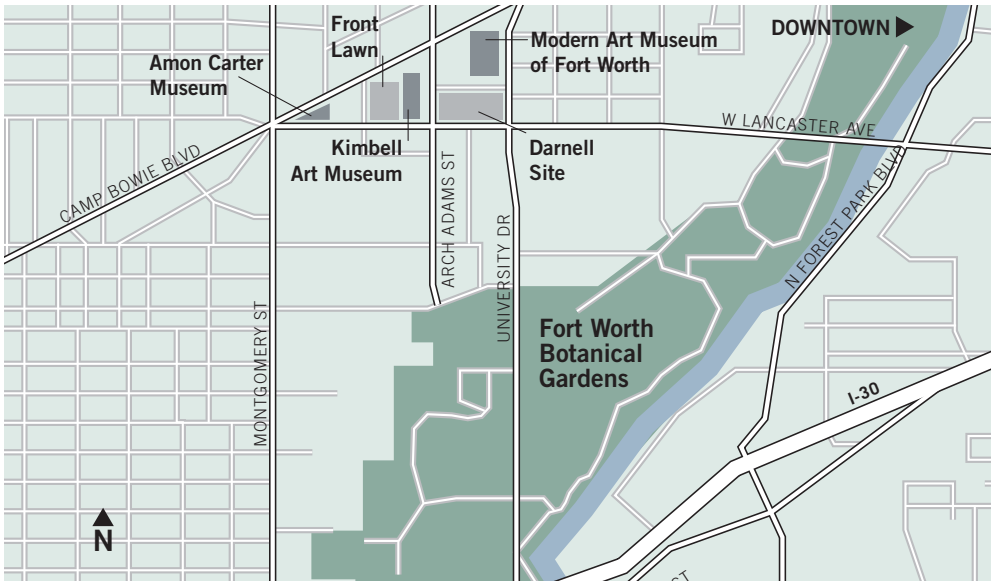
The Dallas Architecture Forum launches its 2008-2009 Lecture Series with a presentation by Boston's Kennedy Violich Architecture. For more details, visit *www.dallasarchitectureforum.org*. DEC 4

Terrific Treehouses

Terrific Treehouses presented by the San Antonio Botanical Society in partnership with the AIA San Antonio and the San Antonio Parks and Recreation Department presents this imaginative exhibition. (See news story on p.14.) For more information, visit *www.sabot.org*. Through DEC 7

Preservation Fellows Program

The Texas Historical Commission is seeking student applicants for its Preservation Fellows Program, which strives to increase the diversity of professionals working in the field of historic preservation. Undergraduate and graduate students pursuing fields of study in history, preservation, architecture, landscape architecture, archeology, downtown revitalization, and heritage tourism are eligible. For an application, visit *www.thc.state.tx.us* DEC 31



Kimbell Eyes Front Lawn for Expansion

FORT WORTH With renowned architect Renzo Piano currently at work on an expansion project for the Kimbell Art Museum, the Kimbell's leadership appears to be leaning toward siting the new building on its front lawn.

While a formal decision is not expected until mid-November, the museum's acting director said in a recent interview that Piano has presented his ideas for expanding on either of two sites—one to the west of the existing museum and the second on property across the street to the southeast. A similar plan to build on the west-side lawn was scrapped almost 20 years ago in the wake of protests over fears that a new building might negatively affect the original Kimbell designed by Louis I. Kahn and revered by many as a masterwork of twentieth-century architecture.

In an interview on Oct. 1, Malcolm Warner, the Kimbell's acting director, confirmed that the board is weighing the merits of two proposed sites and the architect's respective designs. "[Piano] has presented them to the board at various times and things have changed quite dramatically according to where the building has been located," Warner said, adding, "and still could change further, even at this stage."

One of the proposed sites, called the Darnell site, is located on property to the southeast and across Arch Adams Street from the Kimbell. The other is located within the green space in front of the museum on its west side. While Warner was careful to emphasize the fact that no final decision has been made, his assessment of the relative merits of the two sites seemed to give the advantage to the west-side lawn over the Darnell site.

"It will bring life back to the west door of Louis Kahn's building that he always considered the main entrance," he said. "One of the graces of a new building on the west side is it would alter the orientation of the Kahn building and at last it would feel like a building that you are supposed to enter through the west because it [would be] part of an organic whole on that side. The front will be returned to the front and the back returned to the back."

While he described the Darnell site as larger and "more flexible" than the lawn, Warner said Arch Adams Street would impose a "great divide" between the two buildings but that a street closure would have "huge disadvantages." "The other down side to using the lawn is that it's a green space that is very dear to the people of Fort Worth. We've always been aware of this," Warner said.

Should the lawn win out, Warner said, "The board has expressed its concern repeatedly to Renzo Piano that the new building should not in any way dominate the Kahn building. The board has emphasized to him that he should stay respectfully low and the right distance from the Kahn building. We want the new building to have a conversation with the Kahn building but not too close to, in any way, crowd Kahn's great building."

Regardless of its site, he said, the much-needed expansion is expected to break ground next summer and could be complete by 2012.

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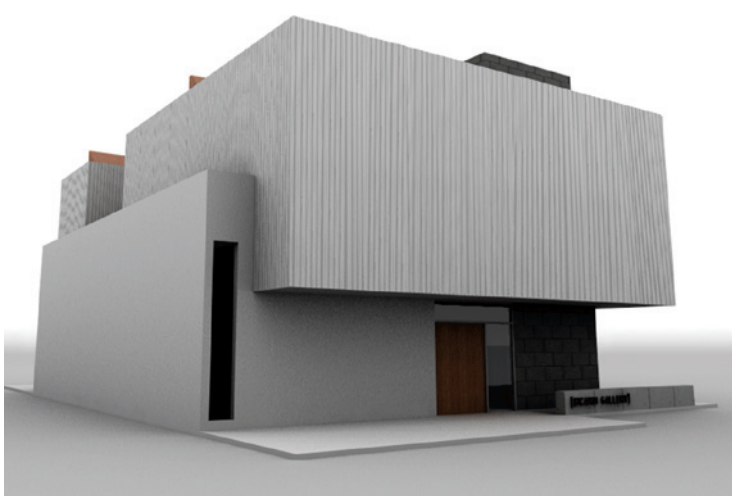
Interstate 35 Makeover

Ever since 1962, when construction was completed on Interstate 35 through downtown Austin, the elevated highway effectively bisected the city between a prosperous west and a neglected east. Commissioned by the Downtown Austin Alliance to devise a solution to that perceived division, local firm Cotera + Reed Architects has imagined a permanent installation for a two-block section between Sixth and Eighth streets. Comprising 18 curved and tapered galvanized steel poles affixed to existing infrastructure, the project is intended to improve both the freeway's external appearance and the streetscape underneath. Lights positioned strategically on the underside of each pole will establish a more inviting nighttime atmosphere for pedestrians. The architects describe the effect as analogous to vapor trails and drops of water on a string, creating a visual manifestation of the need to overcome existing divides and connect the opposing factions of the city. Construction is set to start early next year.

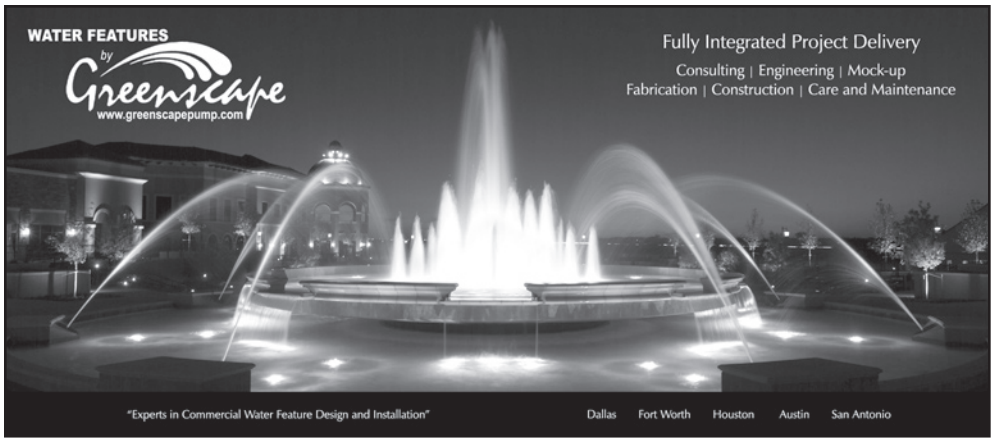
LCU Modular Housing

SLS Partnership in Lubbock has designed an innovative and economical solution for creating a campus housing community that also may be the largest renovation project in North America using recycled shipping containers. The proposed plans call for gutting and renovating the interior of the Rhodes Perrin Field House, a WWII-era landmark on the Lubbock Christian University campus, then inserting steel containers – known as an ISBU (intermodal steel building unit) when used in construction – along the east and west side of the existing structure. Housing modules yielding four single-occupancy rooms will be constructed from three 8x40-foot containers connected lengthwise. The result will be 224 square feet of living space per room, including a private bathroom and closet. Preparatory work on the 72,000-square-foot Field House began in May. The existing roof was torn off and replaced with an energy-efficient foam roof fitted with 160 skylights. The project is scheduled for completion next autumn.



Sicardi Gallery

The new 5,200-sq. ft. Sicardi Gallery, near the Menil Collection and the Houston Center for Photography, will house a second venue to fulfill its mission to facilitate a cultural dialogue between Latin America, the U.S., and Europe through art. As conceived by Brave Architecture in Houston, three interconnected display spaces can be configured to function independently or in combination to accommodate larger shows. The general concept for the building is to provide interior spaces that serve as backdrop for the art installations without interfering or competing with the works displayed. The exterior form, clad in masonry and zinc panels, expresses the building's internal functions through the folding of materials and inside-out planes. Interior finishes will include smooth, white-painted drywall, concrete and wood floors, drywall ceilings, and stained wood doors. Controlled natural light will enter the building indirectly to illuminate many of the gallery spaces. Construction is anticipated to start late this year.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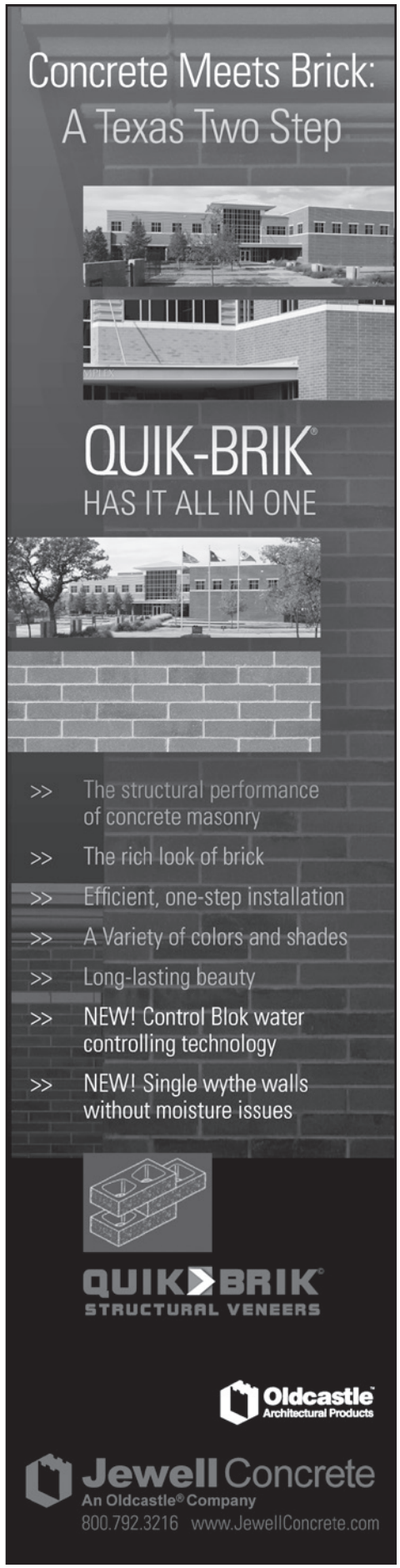
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Open Window to History

A look back at the improbable conservation of the Texas School Book Depository

by JONATHAN MOORE

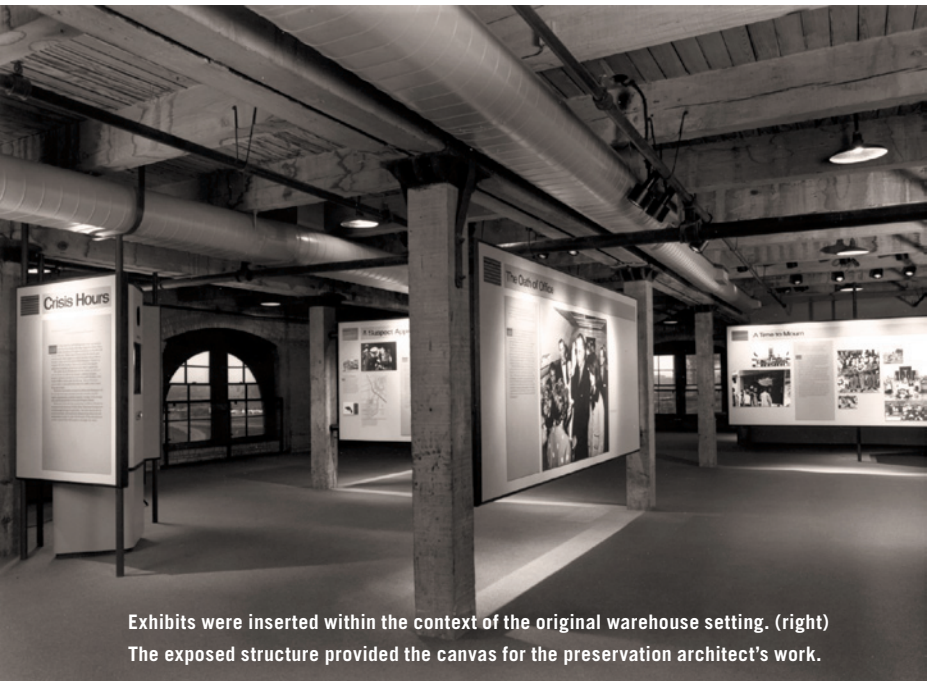
Almost 20 years ago, an infamous building in downtown Dallas reopened as a museum dedicated to the history of events surrounding the assassination of President John F. Kennedy. The Sixth Floor Museum at Dealey Plaza replicates the time and place where a sniper took aim at half-past noon on Nov. 22, 1963. Through the combined efforts of architects, civic leaders, preservation historians, and many volunteers, the museum allows 325,000 visitors annually to experience the building as it existed when JFK's motorcade passed by 45 years ago.

The former Texas School Book Depository remains an unassuming seven-story structure at 411 Elm Street. Symmetrically square, with arched windows and double-paired indented Ionic columns articulating its top two floors, the building appears the same today as when its name was indelibly seared into the nation's memory as the place where shots rang out, suddenly terminating the Kennedy presidency.

Constructed in 1901 as a merchandise showroom and warehouse for the Southern Rock Island Plow Company, the Book Depository had several incarnations before becoming a textbook distribution facility for Texas public schools. For years after Kennedy's assassination, the building stood as a dark architectural reminder, a symbol of civic regret which left its very survival in doubt. Bitter feelings lingered for years as Dallas was besieged with a torrent of unwelcome publicity as the locale where the death of a charismatic and telegenic president meshed with the emergence of modern media coverage. Seventy-two hours of continuous news reports first took hold in Dallas that bright autumn afternoon—the Book Depository becoming the focus of images and commentary flashed to a shocked and grieving nation. Immediately following the assassination, it seemed as though Dallas might have these unwanted images stamped forever on the national conscience.

Two decades later, the magnitude of that tragic event eventually gave way to a grudging realization that the Book Depository's legacy must be addressed, and opinions came from all quarters of the city and throughout the state of Texas regarding the building's future. The Book Depository

DEPOSITORY PHOTO BY BRET ST. CLAIR, COURTESY THE SIXTH FLOOR MUSEUM AT DEALEY PLAZA; MOTORCADE PHOTO BY WALT SISCO, COURTESY THE DALLAS MORNING NEWS



Exhibits were inserted within the context of the original warehouse setting. (right) The exposed structure provided the canvas for the preservation architect's work.

PRE-MUSEUM PHOTO BY EUGENE GEORGE, FAIA; PHOTOS COURTESY THE SIXTH FLOOR MUSEUM AT DEALEY PLAZA

would ultimately endure a series of colorful owners, several instances of vandalism, and public indifference before restoration became a reality. That process commenced in 1977 with passage of a local bond referendum securing major renovations. Under direction of civic volunteer Lindalyn Bennett Adams and Dallas County Judge Lee Jackson – with funding through a federal grant from the National Endowment for the Humanities – adaptive reuse concepts were selected for converting the building into space for Dallas County administrative offices (floors one through five) with the top two floors (six and seven) containing narrative events of the assassination.

Meticulous Research

For the healing process to begin, local officials realized that facts and emotions had to receive a full and honest accounting. To that end, the Dallas County Historical Foundation concluded that interpretative display concepts were the most appropriate means for conveying the assassination's story and addressing the public's quest for information. The Sixth Floor initiative was launched not only as a venue for depicting an isolated event but also for illustrating how such tragedies occur in the larger and unpredictable flow of history.

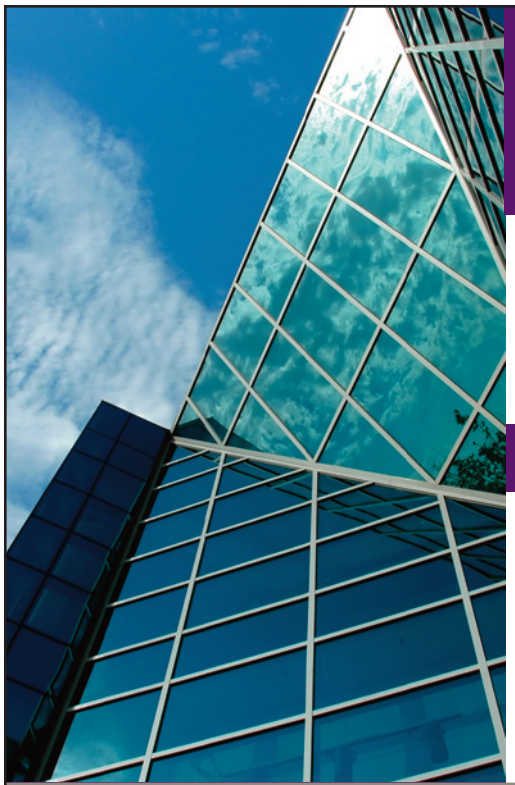
Once the thematic approach was set in place, a commitment was made to preserve the Book Depository as it appeared in 1963. For the exterior envelope and many interior features, the building acquired its own set of architects and planners, separate from those commissioned to design exhibit displays. (Separate building artifacts were also addressed. An issue arose over preservation of a huge Hertz Car Rental billboard. Prominently displayed atop the Book Depository's roof for many years, the sign's immense size and weight created negative wind load factors adding stress to roof joints and beams. Those factors necessitated the billboard's eventual removal from the roof in 1979.)

In preparation for the renovation work, the Foundation selected historian Conover Hunt as the first project director and chief curator for the Sixth Floor project. With funding secured after the bond referendum's passage, Hunt and Lindalyn Adams (who in 1983 had been appointed chair of the newly incorporated Dallas County Historical Foundation) began marshalling an enthusiastic corps of preservation architects, engineers, exhibit specialists, and other restoration experts. Among them were coordinating architects James Hendricks, FAIA, and Tony Callaway, AIA, (principals of Hendricks & Callaway Architects in Dallas), who worked with building officials on a range of renovation options. Their work includes the ground-floor visitor's center, new tower elevators, and a host of mechanical and electrical support structures on the sixth floor. Working alongside Hendricks & Callaway was noted preservation architect Eugene George, FAIA, who at that time was already working on other restoration projects nearby as part of downtown Dallas' West End revival initiative. George's primary task was reconfiguring the infamous sixth floor to its 1963 warehouse appearance, a delicate task of blending a dark and dreary environment into a subdued setting appropriate for a dual-purpose education and commemorative space. To augment this interior restoration and preservation project, the Foundation selected Staples & Charles, Ltd., an Alexandria, Va.-based interpretative planning and design firm, to coordinate and arrange assassination photos, documents, and other artifacts into exhibit format for the general public.

Approximately 11 years of public diplomacy, painstaking research, and design team coordination ensued before the doors officially opened on President's Day 1989. Officially designated a museum in the early 1990s, the Sixth Floor celebrates its twentieth anniversary in February with a slate of new exhibits and presentations.

Recreating Time and Place

"Cooperation and intellectual curiosity amongst the entire design team imbued every facet of this challenging project," recalls George, a Texas native and a catalyst for reinvigorating Historic American Buildings Survey within the state in 1961, who viewed the sixth floor as a system of



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Glass walls now enclose the notorious 'sniper's perch' as re-created based on photos taken shortly after the assassination.

static (as opposed to dynamic) space. "The initial layout already existed," he says, "so the interior provided its own canvas, which formed the basis of my work." A leading proponent of designing toward "harmonic proportions," George believes a building's interior and exterior should not be viewed in a structural vacuum. Rather, it must be considered in its total environment to project its original identity and purpose. Defining this identity and purpose was essential for George's authentic recreation of the sixth floor's interior space. He worked with local historians, structural engineers, and even an archeologist, to ensure accurate depiction of space as it appeared when President Kennedy's motorcade passed by. The research included police photos taken moments after the assassination, which revealed heavy timber support beams, light-tan brick walls, and placement of furniture and textbook boxes, as well as studies of the lighting spectrum as it existed on that late-autumn afternoon.

Successful combination of structural aesthetics and visual presentation are crucial with museum design, and the Foundation's selection of Robert Staples and Barbara Fahs Charles (principals of Staples & Charles) blended well with this restorative effort. Utilizing the building's proportional scale and George's retention of "retro interior mosaics," original support beams, window frames, and brick walls provided the backdrop for Staples & Charles' conversion of 9,000 square feet of warehouse into distinct spaces for exhibits featuring documentary film, photos, and audio. A focal point for visitors is the notorious "sniper's perch" – the corner front window facing Dealey Plaza – now enclosed by a 14x14-foot glass box. Complete with replicas of textbook storage boxes, the scene was re-created as it was found when police first descended just minutes after the shooting.

Researchers also combed through Warren Commission investigative reports, news photos, and other documents analyzing specific characteristics of the building. That wide-ranging effort achieved a key objective for balancing exhibit placements with pedestrian circulation. (ADA guidelines and other code compliance factors were assessed for specific exhibit areas.) "Our primary mission was creating visual and audio exhibits within the context of an original structural setting," says Barbara Charles, who with partner Robert Staples has designed exhibits for the Smithsonian Institution and Thomas Jefferson's Monticello. "Reviewing display components from lighting and sound to photo and text placement, we achieved our objectives in concert with the architect's successful preservation of this building's structural integrity." Along with numerous structural upgrades, new HVAC ductwork, climate control systems, and electrical wiring were installed, their labyrinthine networks of wires and tubes stealthily tucked into wooden ceiling crenels and hidden under the floors. Soft lighting and spotlights for exhibits are augmented by daylight from a row of large arched windows facing south toward Dealey Plaza. (In 2002, Cunningham Architects of Dallas completed a retrofit of the seventh floor that doubled the museum's exhibit space.)

The result of all the work eerily replicates a specific point in history, surrounding visitors with myriad artifacts and recorded loops of original news bulletins. This carefully preserved interior space illustrates how epochal events often occur in the most mundane of places.

Though John F. Kennedy's life story abruptly ended here, his memory survives through careful documentation of the journey that brought him to Dallas. With the project for The Sixth Floor Museum at Dealey Plaza, the combined efforts of architects, engineers, and exhibit specialists surpassed mere design. They blended aesthetic knowledge and collaborative skills to recreate living history within a once-abandoned structure. For the people of Dallas, coming to terms with events beyond their control has had positive, cathartic effects. As Gene George says, "Interpretive design initiatives will continue to be an important facet of architecture, a segment of practice where design recreates history for future generations to better understand the past and how it affects us today."

Jonathan Moore is a public affairs consultant in Alexandria, Virginia.

PHOTOS COURTESY THE SIXTH FLOOR MUSEUM AT DEALEY PLAZA

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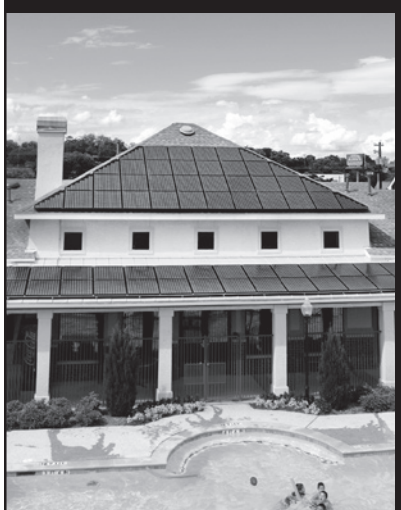

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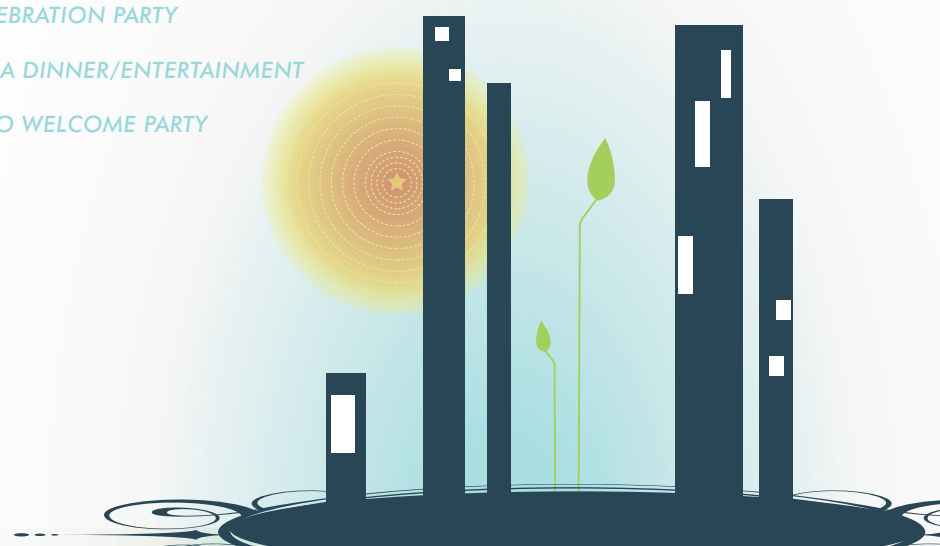
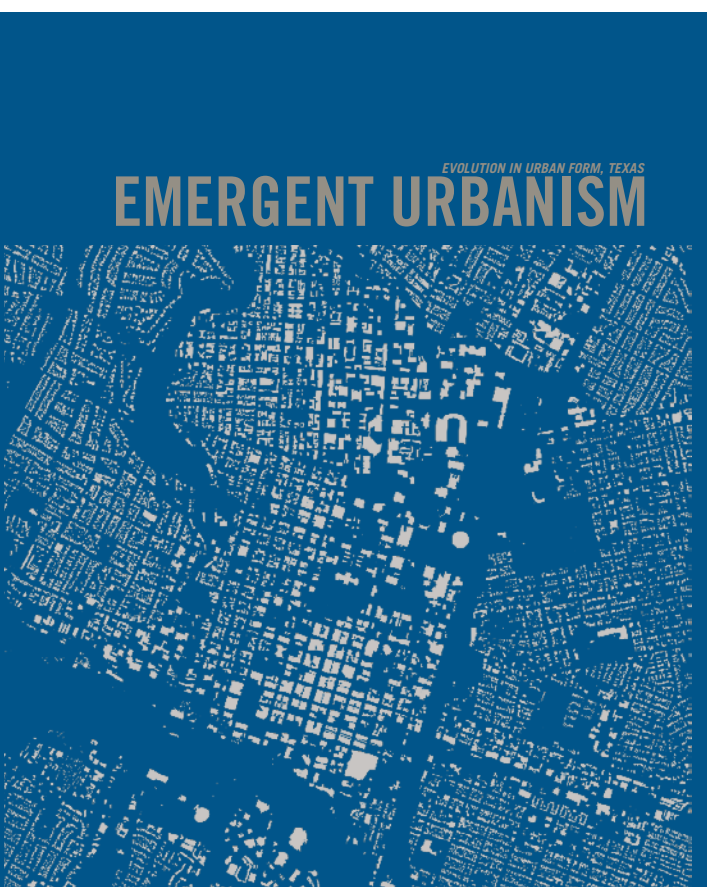


Central Texas by the Book

CNU's *Emergent Urbanism* explores the region's past, present, and potential for a well-managed future

THE COMPLEX DEVELOPMENT ISSUES AFFECTING Austin and the surrounding region are best understood when viewed as interwoven layers of culture and history suffused with equal amounts of enlightened leadership, misguided policies, good fortune, and poor planning.

The challenges facing the burgeoning populace of Central Texas are essentially the same as those in most urban regions across the American Southwest—sprawl, environmental degradation, and traffic congestion being just a few of the common denominators. But as everyone knows by now, Austin is weird and widely appreciated for remaining so. To help explain the experience of living in Austin and Central Texas, and to grasp the region's growing pains and its potential for learning from past mistakes, there may be no better tool than *Emergent Urbanism: Evolution in Urban Form, Texas*, published under the imprimatur of the Congress for the New Urbanism.



To educate out-of-towners attending CNU XVI in Austin last April, local architects and urban planners assembled 39 brief articles that methodically bring into focus the region's past and present, and best-case scenarios for its future. The book is the latest in a series published in conjunction with CNU's annual conferences to spotlight that year's regional host. With support from the CNU, *Emergent Urbanism: Evolution in Urban Form*, Texas was produced by the University of Texas at Austin's School of Architecture and the Austin design firm of Black + Vernooy Architecture (including the firm's newly launched subsidiary, the Placemaking Studio, that specializes in urban design and planning).

The soft-bound compendium is bookended by essays written or co-written by Black + Vernooy principal Sinclair Black, FAIA, a longtime advocate for progressive urban planning in the region. At this year's conference, Black, who continues to be deeply involved in the civic, cultural, and community affairs of Austin, received the CNU's highest award, the Athena Medal, that recognizes the legacy of pioneers who laid the groundwork for New Urbanism. Other notable authors include UT Austin School of Architecture Dean Frederick Steiner, Austin Mayor Will Wynn, CNU co-founder Stefanos Polyzoides, and co-directors of the Austin-based Center for Maximum Potential Building Systems, Gail Vittori and Pliny Fisk, FAIA.

Divided into five chapters, the book ranges across the information spectrum to paint a multi-dimensional portrait of a region that has undergone a paradigm shift over the last 50 years. Among the highlights are a history of Austin's music scene, a lesson on the geography of Central Texas, and a vision for the Colorado River Corridor.

As the region's epicenter, Austin receives the most attention, and readers familiar with the city are likely to feel at turns nostalgic for the laid-back place it used to be and anxious about its ongoing mutation into a "world-class" city. Fortunately, no ink is wasted in rehashing the emotional turmoil that fuels every old-time Austinite's barrage of complaints. Instead, the writers and editors stick to the fascinating facts.

And to put Central Texas into a statewide perspective, *Emergent Urbanism* reaches beyond the region to illuminate urban development issues taking form in other major cities. Individual articles spotlight ongoing urban design projects in San Antonio, Dallas, Fort Worth, and Hous-

Continued on page 75

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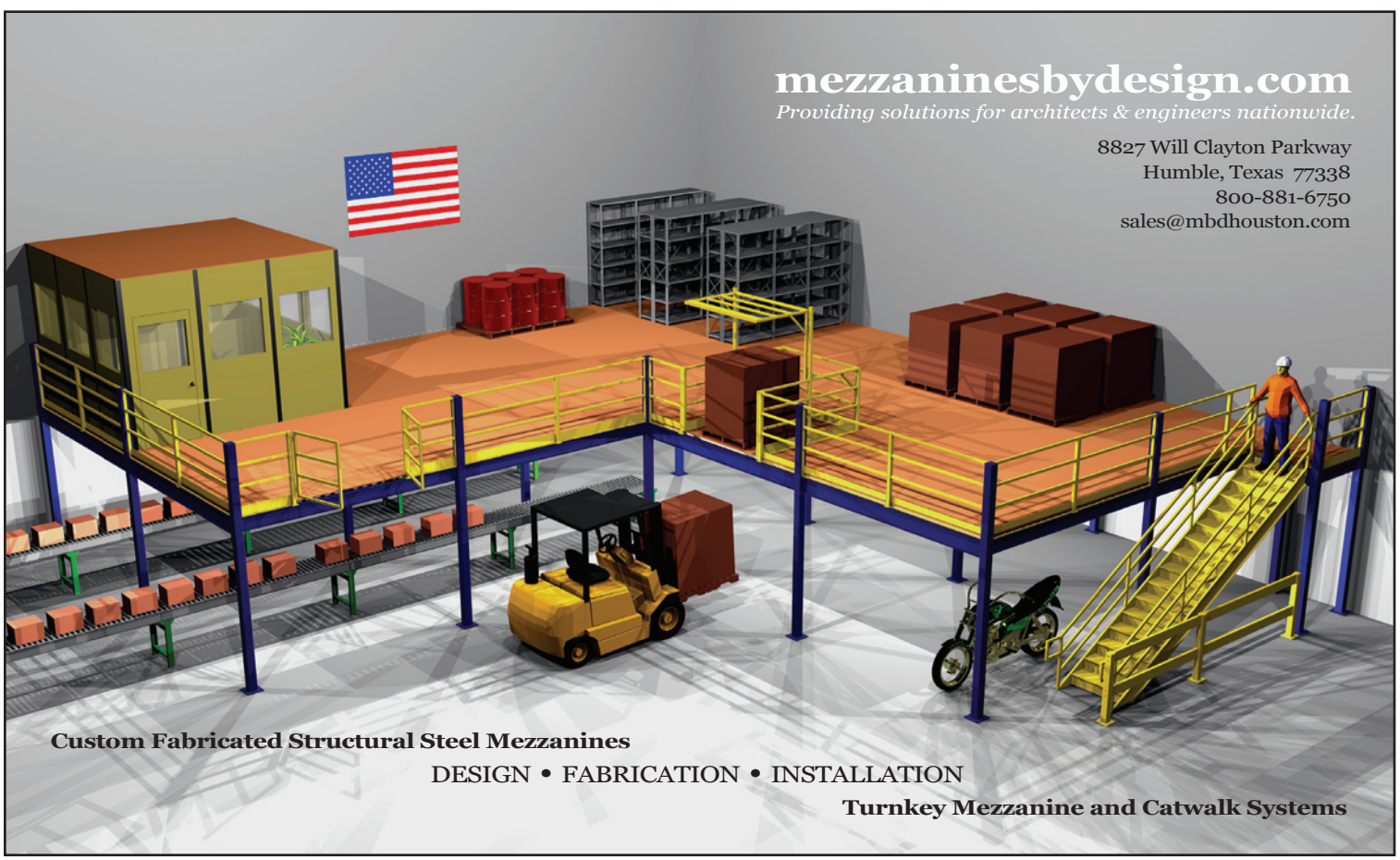

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GAUGING Green

Critics cite need for improvements to popular rating systems

by LARS STANLEY, AIA, AND LAUREN WOODWARD STANLEY, AIA

AT A TIME WHEN OUR NATION'S FINANCIAL SYSTEM SEEMS TO BE imploding, it's sometimes distressing to ponder what the future holds for the architectural profession. Our livelihoods are inextricably tied to the fortunes of the building industry, which quickly reacts to any economic downturn and in turn affects our work accordingly. Troubling, too, is the issue of global warming because our profession has an immediate and direct impact on the environment. And considering that buildings in the U.S. consume about 70 percent of the nation's total electricity output and 12 percent of its water, it is evident that what we do as designers and builders in the future must be increasingly responsive to such grave issues. Clearly, we cannot continue on the path we have been following since the use and availability of resources are drastically transforming the landscape ahead.

The building industry has recognized its own impact on resources to some degree and is responding to an extent. Resource conservation and energy-efficient design have gone beyond mere lip service in the last few years, but a sizable amount of the effort has produced results largely within the context

of marketing, which alone will not accommodate radical changes in the fields of energy, climate, the economy, etc. Many clients have realized that high-performance buildings are more marketable and are usually more economical in the long run. This awareness has been spurred by several building assessment and rating tools (such as LEED, Green Globes, CHPS, etc.) developed to help implement improved design and gauge how well it performs.

Arguably, the most successful rating system nationwide is the Leadership in Energy and Environmental Design (LEED) rating system, which has become a benchmark in the industry. It was developed by the U.S. Green Building Council (USGBC), a non-profit trade organization dedicated to sustainable design through "market transformation"—meaning, through changing the perception that energy efficiency and environmental sensitivity equals higher costs rather than lifecycle savings. USGBC members are mostly professionals and companies from the design and building industry, many whom also sit on committees that continuously refine existing and develop new sustainable strategies to reflect the realities of the marketplace. The result is an ongoing evolution of LEED, which next year will be updated in an attempt to remain relevant to our rapidly changing world. The new version, LEED 2009, is being developed to respond to an increased sense of urgency by proffering changes demanded by the pending environmental and energy crises, as well as to criticisms of the rating system itself.

One current criticism of LEED's rating process derives from the fact that contemporary versions do not recognize critical regional sensitivities within the larger environment. For example, in Austin, environmental activists have spearheaded the passage of city ordinances that severely limit development on tracts of land within sensitive aquifer recharge zones. Runoff inside these recharge zones, in addition to contributing to Austin's drinking water, often pollute beloved swimming holes such as the iconic Barton Springs, a significant natural landmark and part of Austin's social fabric. Acknowledging the local community's desire to preserve the essential nature of these critical areas, the Austin Energy Green Builder Program disqualifies any development in these areas and disallows any green rating for projects within these zones, even if the project complies with other, more stringent development requirements. This position recognizes that the green label requires a broader awareness of a project's overall environmental and social impact. LEED, however, does not make any such nuanced distinctions. Development can occur in these critical areas without affecting a project's accumulation of LEED points. Needless to say, developers wanting to build in these areas and still be perceived as green would likely opt to seek a LEED rating and ignore this important manifestation of local community wisdom. In response to the need for regional adaptation, LEED 2009 will try to recognize environmental priorities to an extent through the use of "regional bonus credits" determined by consultation with regional councils. Still, it seems that more work is needed here. If a region has crafted a policy or practice that reflects its own history and wisdom over time, and the local community is the most intimately familiar with its own resources over any other player, it seems LEED should be in step with this wisdom to place sufficient emphasis on critical environmental elements, particularly if these elements are intimately related to preserving a community's identity and keeping a region's physical and cultural fabric intact.

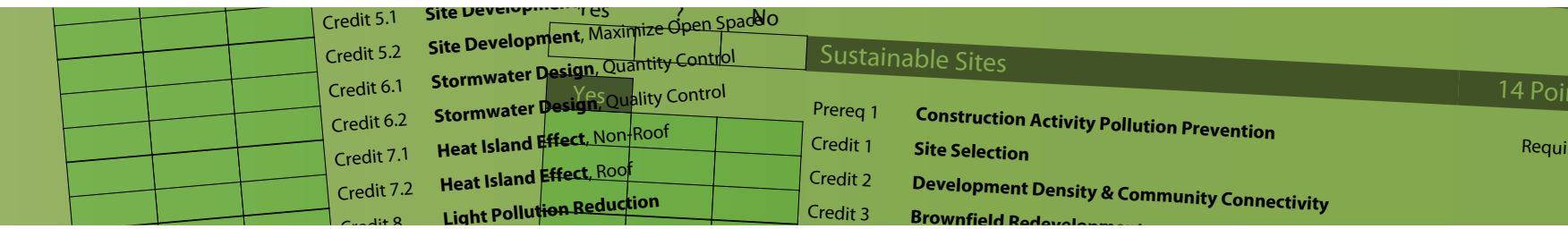
Since rating systems involve the assignment of points to specific elements, another criticism being addressed in LEED 2009 is the way these points are weighted. The new version includes revisions garnered from a process of re-weighting and re-allocating credits, according to additional qualities embedded in an element, such as its long-term impact on CO_2 emissions or its production of renewable energy. The impact-based weighting system, according to the USGBC, "represents a complex mixture of qualitative analysis, rules, policies, and values" based on consensus from a pool of industry experts, public input, and "best available science." Although this tactic is quite involved, it will help make LEED more effective.

Ratings and Liability

Several recent studies of LEED point out discrepancies between the documentation and actual performance of LEED-rated projects. In a paper titled "Green, Sustainable or High Performance? Knowing the Difference and Managing the Risks," Ujjval K. Vyas, PhD, asserts that most "green" or "sustainable" buildings are being portrayed inaccurately by designers. The claims of energy efficiency, improved user performance, "economic viability to adding green attributes," etc., he cautions, are based on "the rather flimsy nature of many studies," and in fact may affect professional responsibility. (As an attorney, Vyas is concerned with matters of legal liability. His paper derived from a presentation delivered in 2007 at the Defense Research Institute Construction Law Seminar. Vyas is a LEED accredited professional and an affiliate member of the AIA.) Vyas claims that rating systems such as LEED are "not created to deliver measurable results" and, furthermore, do not. Thus, he continues, any declarations of improved building performance are merely aspirations geared toward marketing efforts used by clients to help them sell their projects. If owners are seeking better performance, Vyas recommends that "green needs to be firmly aligned with high-performance buildings" as determined by definitive methodology that accurately measures the performance of the project after it is built. He states that designers and builders who make claims that aren't proven may be held liable for those claims, especially when public money is being spent. Efforts to create a truly sustainable

built environment, he suggests, must move beyond advocacy and towards measured practice and long-term education. Yet, performance is hard to predict since owners control the operation and maintenance after the project is completed, but this is a critical aspect that could benefit from further refinement.

Related to measuring performance, another recent paper ("Another Way to Rate Green Buildings," written and self-published by Henry Gifford, a vocal critic of LEED) aligns with several points raised by Vyas. However, Gifford goes a step further by setting out the rationale and support for his opinion that LEED-rated buildings use more energy than non-rated buildings. He also emphasizes that any claims to greenness need to be supported by data based on actual performance, not predicted performance, and is disdainful of the marketing focus of many green projects since, as he states, they often don't truly save energy. He is critical of a New Building Institute report, "Energy Performance of LEED for New Construction Buildings," that compares measurements of actual energy use by LEED-rated projects with those of similar building types that haven't been LEED-rated. Gifford claims the data is not properly interpreted by NBI and the results are skewed in favor of the LEED-rated buildings. NBI responded in kind, defending its interpretations and emphasizing that the overall intent of its effort is to re-evaluate and issue updated reports to reflect what is learned over time, and therefore help to improve the LEED system. While it is fairly easy to measure energy use, since power companies keep track to bill customers, the fact remains that it is very difficult to interpret the results because so many variables come into play. For example, if the owner or users of a building leave windows open, don't change filters, disable controls, etc., then consistent results are affected. Nevertheless, Gifford says it would be better to have a rating system that has an ability to accurately test the results of the design after completion as well as yearly. Then, if the project fails to comply with original goals the rating is revoked until compliance is reached. Since much of the current focus on green has to do with perception vis a vis marketing, the revocation would have to be advertised or disseminated somehow. While the intent seems valid, this approach could be problematic.



> With the 'industry' as its membership, can the USGBC be sufficiently critical to make real improvements to LEED?

LEED Leads the Way

While such opinions may sting a bit, this kind of discourse is sorely needed. An underlying sentiment expressed by some observers is that USGBC, because its membership comprises representatives of the "industry," cannot be sufficiently critical in trying to improve itself. An example of this presumed pitfall might be seen in the step expected to be included in LEED 2009 that merely grants credits for addressing regional environmental concerns rather than advancing a more holistic or integral approach that places a building's site and/or its social context at the forefront of its sustainability. This rather lukewarm response may appear to demonstrate that the industry is too accommodating or else does not want to restrict development, one rationale being that if development in sensitive areas is inevitable, we need to make sure it is green. More rigorous evaluations will probably require neutral input from a third party, similar to the findings of the National Building Institute. As the NBI notes, its year-long study "is the first formal look at LEED building performance and suggests significant opportunities for program improvement."

However, there is no denying that LEED has experienced unparalleled success, partly because environmental concerns have been balanced with market realities. More will need to be done on all fronts, but the structure of USGBC has been wisely established to take advantage of this re-evaluation approach and has grown because of it. As explained recently by Michele Van Hyfte, AIA, an experienced LEED-accredited planner in Austin, "The number of municipalities, counties, and states, not to mention the GSA, who have adopted LEED is phenomenal. 324 different public entities have adopted LEED as a standard for building performance…. USGBC set the stage, gave the actors a script and an audience who is listening. LEED made environmentally friendly design and energy efficiency tangible and gave our industry a language to speak with."

Indeed, within an increasing number of public and private communities, the awareness of sustainable design has increased and its marketability is recognized and sought by property owners. Crucial to this market transformation is the fact that it is driven by users and owners, although some are challenging whether the transformation is actually producing projects that are more green and use less energy. The next act for the green community is to address a radically different marketplace, the one now being wrought by peak oil and global warming—issues the market has never before encountered. With severe crises on the near horizon in multiple directions, the transformation will need to be deeper, more nuanced, and from the heart.

Lars Stanley, AIA, and Lauren Woodward Stanley, AIA, are principals of Stanley Architects & Artisans in Austin. Lars Stanley is a LEED accredited professional.

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Audubon Takes Flight

by STEPHEN SHARPE

Just eight miles southeast of downtown Dallas, another world exists far removed from the city's shimmering high-rises and labyrinthine expressways. This world is known as the Great Trinity Forest, the largest urban bottomland hardwood forest in North America. Its 6,000 acres support a widely diverse community of plants and animals that thrives in this unique ecosystem where three distinct biomes – timberland, wetlands, and prairie – converge.

The Great Trinity Forest is in turn nourished by the Trinity River that for decades was written off by city dwellers as irreversibly spoiled by industrial pollution and runoff made toxic by pesticides and herbicides. However, in 1998, Dallas voters approved the first public funds to create the Trinity River Corridor, a complex urban development that will transform a 20-mile stretch of the river along its serpentine path just west and south of the downtown.

The $10.7 million Trinity River Audubon Center is the first major project to be completed as part of the Trinity River Corridor. Opened to the public in mid-October, the new Audubon facility was built by the City of Dallas as an interpretive center for visitors to learn about the natural world that teems with innumerable species of wildlife at the city's edge.

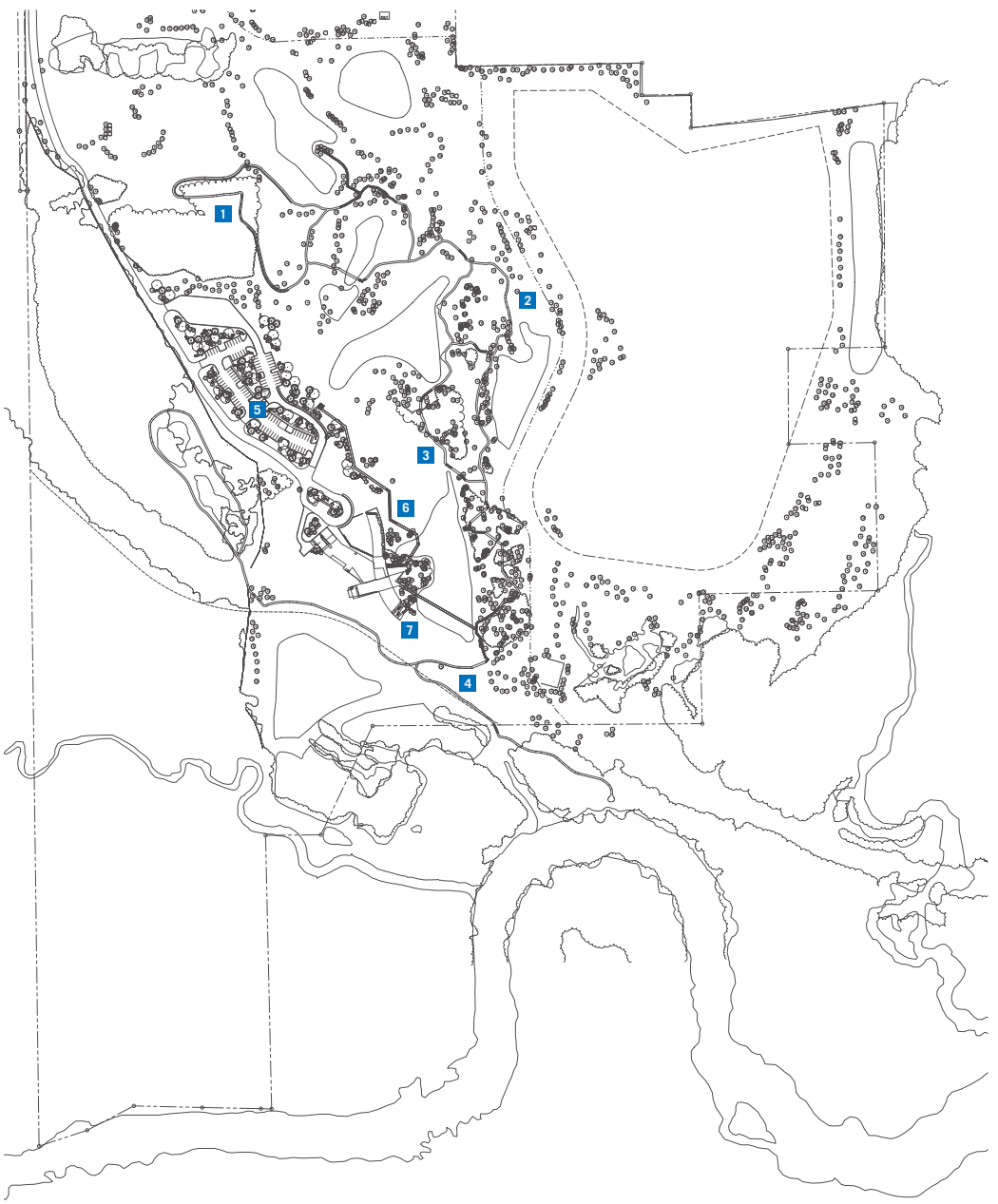
Design architect Antoine Predock, FAIA, working in association with BRW Architects of Dallas, celebrates this flourishing riparian world with a building that simultaneously appears to dissolve into the bottomland while also emerging from the alluvial muck. In plan, Predock's concept metaphorically takes flight, with the literal expression of a bird spreading its wings. But seen from the ground, his elemental abstractions tie the tripartite building to its context with trajectories toward land and water.

Predock intuits these connections through surface textures that simulate both nature and humankind's precarious attempts for domination over it. He juxtaposes industrial materials with earthy elements, wielding mottled steel panels as homage to "Corps of Engineers vernacular" and cypress siding to evoke the woodland's essence. Grassland figuratively overtakes the building's administration wing, rising as a built-up slope of engineered soil sown with native grasses long banished from this stretch of the Blackland Prairie by farmers who made cotton king. By next year, when the switchgrass, bluestem, wildrye, and other perennials carpet the north end of the site, a green roof will partially envelop the administration wing already anchored to the ground with exterior walls of board-formed concrete. Buried beneath the simulated grassland is a sophisticated drainage system that feeds into a large underground reservoir used for on-site irrigation.

Predock describes an initial sketch as depicting the Audubon Center "dancing with the site," engaging the adjacent forest and the river that flows just 100 yards away to the south. The Albuquerque-based Predock is well known for his idiosyncratic approach to architecture that responds to the geology and geography of a site, a determined pursuit of design solutions recognized with the 2006 AIA Gold Medal.

Located between Loop 12 and the LBJ Freeway, the Trinity River Audubon Center sits on a 120-acre nature preserve, a tract reclaimed by the City of Dallas after the closing of a landfill where more than 1.5 million tons of construction debris was illegally dumped. After the material was determined to be safe, it was removed and used as infill to sculpt rolling hills as envisioned in the master plan devised by Craig Reynolds, FAIA, of BRW Architects. Additional earthwork created a series of clay-lined pools that channels runoff through gentle cascades, filtering the flow to replenish a large retention pond along the building's east side, then eventually coursing downstream into two other pools before emptying into

FLOOR PLAN
1 EDUCATION WING
2 ADMINISTRATION WING
3 CAFE/STORE
4 GREAT HALL
5 EXHIBITS



SITE PLAN
1 HIGH POINT OVERLOOK TRAIL
2 PRAIRIE TRAIL
3 WETLANDS TRAIL
4 FOREST TRAIL
5 PARKING
6 ENTRY BOARDWALK
7 DISCOVERY GARDEN

the Trinity. The retention pond, wreathed with native grasses and brush to attract wildlife, is spanned by an elevated footbridge that leads visitors through the forest along 2.5 miles of improved ground trails. The path eventually brings them to an observation point about 20 feet above an oxbow in the river. Such intimate contact with nature, especially its seasonally changing population of migratory birds, led the National Audubon Society into a contract with the City of Dallas to manage the facility and house its state organization within the new building. It's no surprise then to see Predock's avian motif with patterns of layered feathers on the entry's soffit, the ceilings of the Exhibit Room and the Great Hall, and in the surface of tilt-wall concrete that bisects the central part of the building.

Above the entry, the canopy cantilevers 50 feet out from the glass-enclosed foyer. The canopy terminates in two points, resembling a swallowtail's distinctive feathers (and recalls Predock's fanciful "stinger" that extends from the north end of his Austin City Hall in a similarly gravity-defying gesture). Upon entering the Audubon Center, visitors are invited to study various exhibits that interpret the natural world that gurgles, buzzes, flits, and slithers just beyond the walls. Exhibits, designed by Lyons/Zaremba of Boston, also explain the historical significance of the Great Trinity Forest, the Trinity River, and the Blackland Prairie, and the impact human activity has on them.

Canted glass curtainwall provides visitors with broad views of the forest and wetlands from within the air-conditioned comfort of the Exhibit Room and the Great Hall, a large open space programmed to accommodate public and private activities. Windows in these two volumes are sloped at 20 degrees, a measure designed to prevent injuries to birds. "If birds see a reflection of the sky, they can't tell the difference," explains Craig Reynolds, FAIA, the principal in charge of the project for BRW, adding, "Wherever we have glass on the building, its either under a deep canopy or canted." Angled panes of glass also sheathe the east elevation of the education wing at the building's north end. Here Predock articulated the curtainwall with, in his words, "glass chunks" that thrust out from the classrooms' inset doorways. The education wing – a term doubly fitting for this metaphorical avian forelimb as seen in plan – curves as it extends from the central part of the building and gradually rises to a height of 10 feet above grade. With the structure supported by concrete piers, the sweep of prairie grasses will eventually cover the ground underneath.

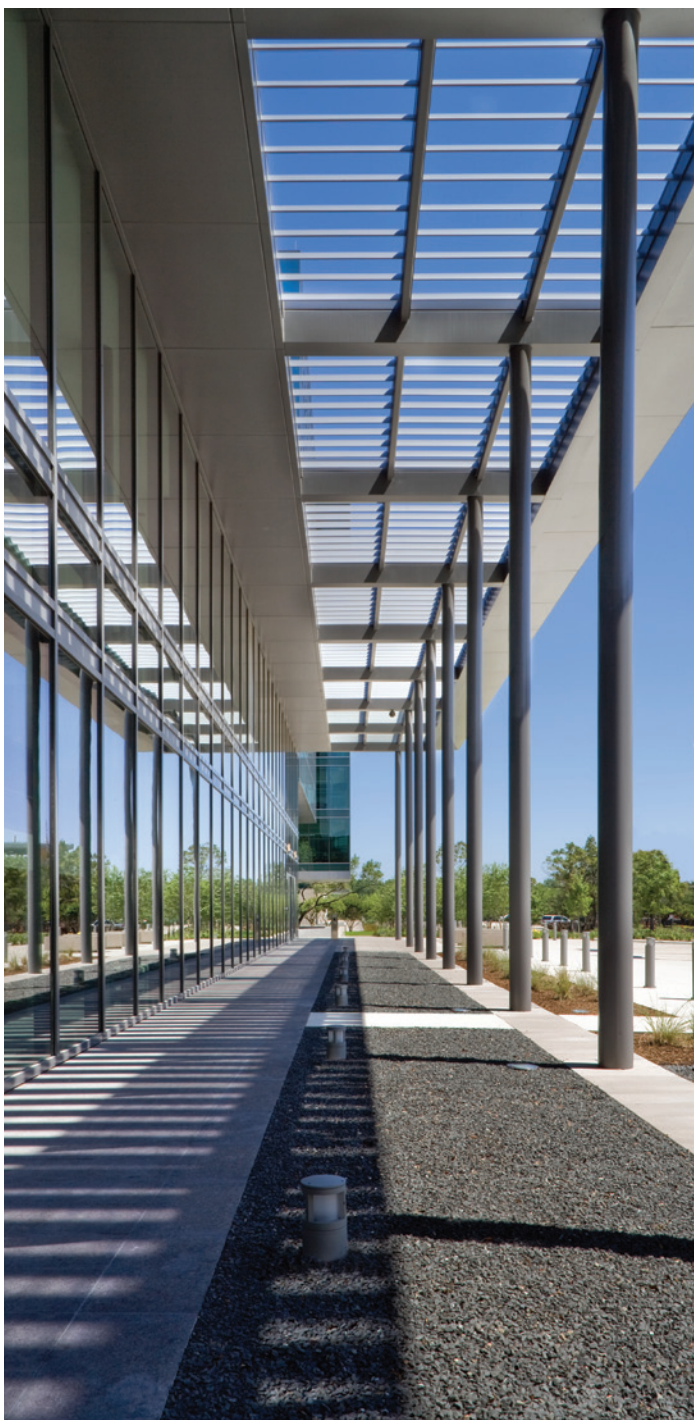
At the opposite end of the building, at the southern tip of the other curving "wing," Predock encased the Exhibit Room with pre-patinated steel pierced with small openings to minimize the solar exposure while helping to illuminate the interior. Predock likens his use of rusty "Corps of Engineers vernacular" to "that notion of erosion and returning to the earth, anchoring in the earth in terms of materiality and oxidation."

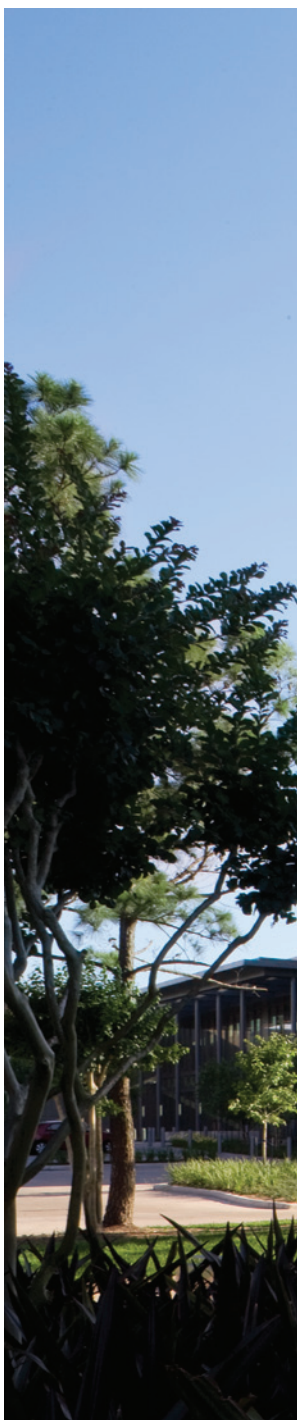
The public project cost $325 per square foot (excluding site work and exhibits), a reasonable figure considering Predock's international stature and its expected LEED Gold rating. As noted by Willis Winters, FAIA, who led the project team for the City of Dallas, "The building is a marvel that will demonstrate to a new generation of Texans the enduring values of sustainability, as well as Dallas' commitment to the environmental and spiritual renewal of the Trinity River corridor. We think we have an extraordinary new facility here, achieved at a great value to the city."

Stephen Sharpe is the editor of *Texas Architect.*

PROJECT Sysco Corporation Headquarters, Houston
CLIENT Sysco
ARCHITECT HOK (design architect), Kendall/Heaton (architect of record), Kirksey (interiors architect)
DESIGN TEAM Roger M. Soto, AIA; Lisa Alfonso, AIA; Brian Malarkey, AIA; Dallas Felder; Julie Gauthier; Scot Hutchison
CONTRACTOR D.E. Harvey Builders
CONSULTANTS L.M. Holder III, FAIA (daylighting); Baker Robbins & Company (A/V); CDC Curtain Wall Design & Consulting (curtain wall); Cerami and Associates (acoustics); clark condon associates (landscape); Command Commissioning (commissioning/LEED); The Douglas Group (graphics); Haynes Whaley Associates (structural); HMA Consulting (building controls); I.A. Naman+Associates (MEP, fire protection); JanCom Technologies (technology); Parking Planners (parking); Parsons (traffic); Persohn/Hahn Associates (elevator); Quentin Thomas Associates (lighting); Tax Advantage Design (tax); Ulrich Engineering (geotechnical); Walter P Moore (civil); William Caruso & Associates (food service)
PHOTOGRAPHER Aker/Zvonkovic

RESOURCES **PRECAST ARCHITECTURAL CONCRETE**: Coreslab Structures; **STRUCTURAL PRECAST**: East Texas Precast; **STONE**: Cangelosi; **MASONRY UNITS**: WW Bartlett; **METAL GRATING**: Texas Meal Tek; **GARAGE GRATING**: Amico-Kemp; **ORNAMENTAL METAL**: Texas Metal Tek; **LAMINATES**: Woodarts; **ROOF AND WALL PANELS**: AEP Span; **METAL DOORS AND FRAMES**: Next Door Company; **WOOD AND PLASTIC DOORS AND FRAMES**: VT Industries; **SPECIALTY DOORS**: Horton Automatics; **ENTRANCES AND STOREFRONTS**: Bruce Wall Systems; **GLASS**: Viracon; **METAL PANELS**: Omega Metals; **DOOR HARDWARE**: Bartley Texas Builders Hardware; **ALUMINUM DOORS**: RACO; **TILE**: Sigma Marble, Granite & Tile; **ACOUSTICAL CEILINGS**: Armstrong; **WALL COVERINGS**: Executive Wall Concepts; **EXTERIOR SUN CONTROL**: Wade Architectural Systems; **RAISED FLOOR**: Hudson Building Systems; **SIGNAGE**: Graphtec; **PROTECTIVE COVERS**: Avadek; **FLAGPOLE**: Kronbergs; **FOOD SERVICE EQUIPMENT**: Stafford Smith; **FLOOR MATS**: Fast Track Specialties; **DRAPERY**: Boriak, Louver; **AUDITORIUM SEATING**: Krueger International





Tastefully Prepared

by GEOFFREY BRUNE, AIA

Sysco Corporations' new headquarters campus is located on Enclave Parkway, a suburban office street that winds through the gated residential communities of far west Houston. The complex includes a conference center, a 12-story office tower with 318,000 square feet, an eight-story office tower with 214,000 square feet, and parking garages that accommodate 1,832 automobiles. A Sysco data center, located in an existing building on the site, is also incorporated into the project.

Sysco's corporate leadership had a goal of creating a headquarters facility that would mirror its close-knit company and enhance its distinct corporate culture for quality work environment and value consciousness. In 2001, Sysco began searching west Houston for a site, but the project progressed slowly after the 9/11 terrorist attacks and the resulting economic downturn. Two years later, Sysco decided to develop the project at its 40-acre Enclave Parkway property owned since 1987 when the company moved from its 610 West Loop offices. At the Enclave site, Sysco occupied a two-story, 174,000-square foot building and leased 200,000 square feet of office space in the area.

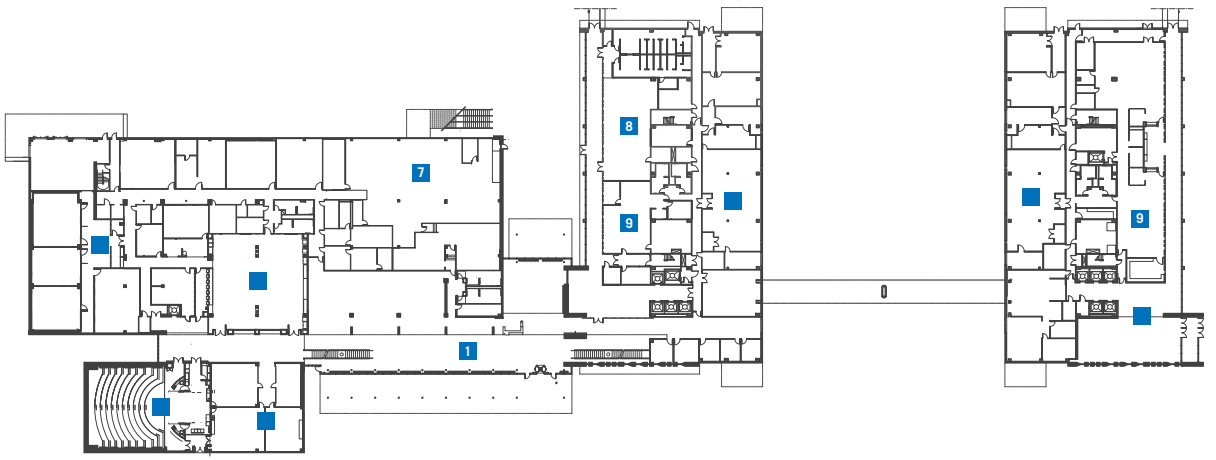
Hines Interests was retained for project development and management. Sysco and Hines selected a design team that included HOK's Houston office as design architect, Kendall/Heaton Associates as architect of record, and Kirksey for design of the interiors. D.E. Harvey was selected as general contractor for the project and contributed information from the commencement of design work.

Several major design issues challenged the team, including the fact that the project site was not contiguous. Approximately 30 percent of the land area is separated by Forkland Drive and located north of Sysco's existing building. Also, Sysco's data center, occupying the ground floor of the existing two-story structure, was to remain operational during the construction of the project. And Sysco required that the project be phased so employees from the existing building would move only one time, while employees in the surrounding lease spaces could be consolidated into the new facility at a later date.

Sysco desired an office design that would provide flexible interior planning, remain competitive in the commercial real estate environment, and allow single or multiple branding. In addition, potential expansion for a third tower was to be considered in the site planning work. Sysco was also interested in developing a healthy interior environment for its employees and in exploring long-term energy conservation strategies.

HOK's design concept utilized the multiple sites to create a campus plan with 530,000 square feet of new office space divided between two structures. One, a 12-story tower located on the north site, is designed as a stand-alone office facility with its own public entrance, lobby, parking garage, and mechanical systems. The structure's size and scale is compatible with other Enclave Parkway office buildings. Including its construction in the project's first phase allowed the initial relocation of Sysco employees.

The second new building, an eight-story tower located on the south site, is connected to the other by a glass-enclosed bridge on level two that spans over Forkland Drive. Adjacent and to the south of the eight-story tower is the conference center that is directly attached to the tower's two-story base. This structure was the existing Sysco office building, a donut-shaped rectangle with an atrium at the center. The architects removed the east portion of the building and rebuilt the atrium into a two-story entrance space. This new glass-faced lobby provides access to the company's conference center meeting rooms, auditorium, exhibition



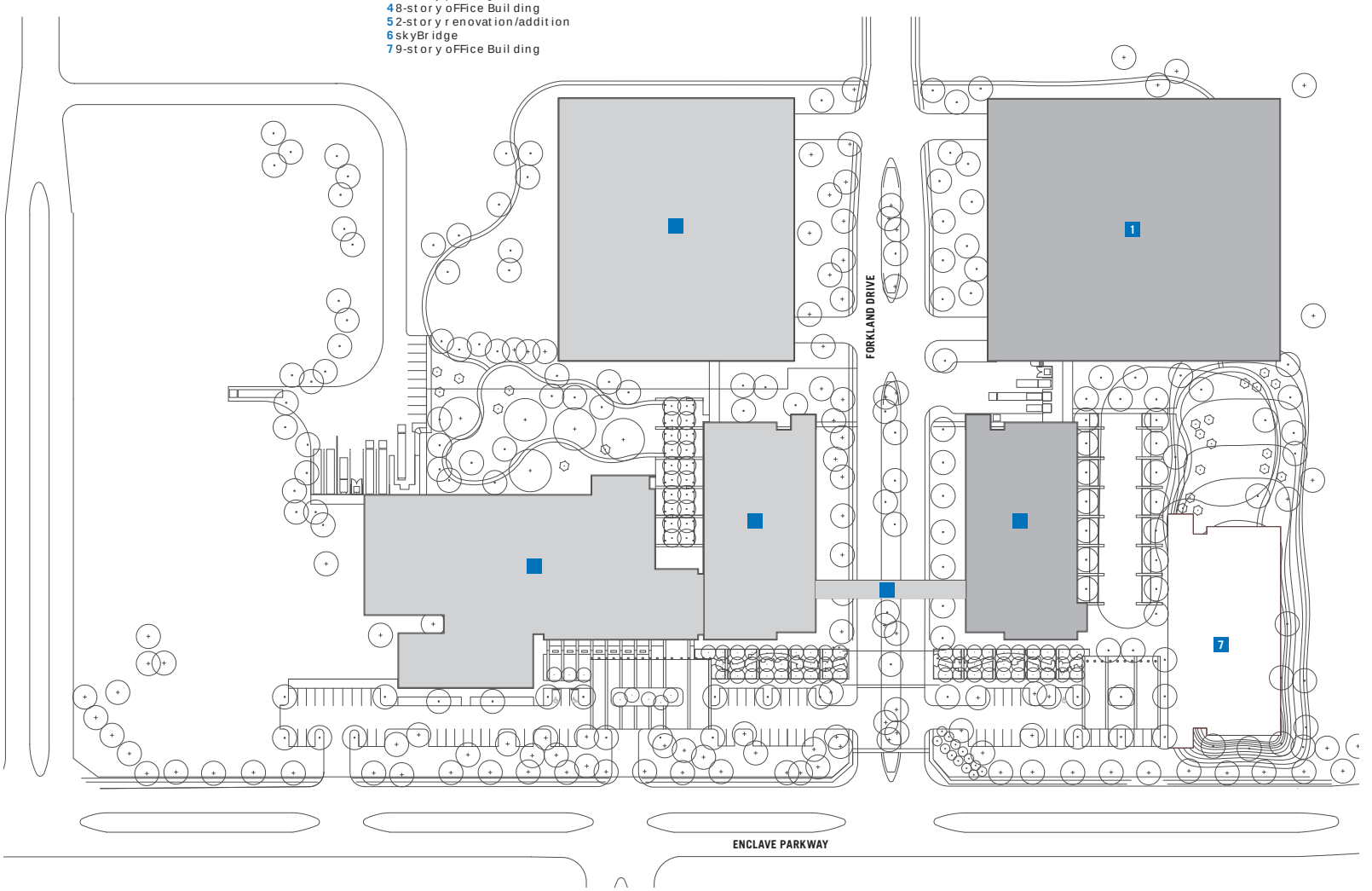
FIRST FLOOR PLAN

1 lobby/conference center
2 main lobby
3 auditorium
4 conference rooms
5 showkitchens
6 kitchen/storage
7 computer room
8 Fitness center
9 Building support
10 mechanical and electrical

SITE PLAN

PHASE 1
PHASE 2
FUTURE PHASE 3

1 4-story parking structure
2 12-story office Building
3 4-story parking structure
4 8-story office Building
5 2-story renovation/addition
6 skybridge
7 9-story office Building



kitchens, and dining spaces. The volume of the conference center's lobby space is animated by a folded plate ceiling that acts as a reflector for dispersing natural light throughout the large space. The previously described data center is located along the west side at the ground-floor level. The project's second phase (which included construction of the eight-story tower and a parking garage, along with the reconstruction of the company's former office space) completed the consolidation of office and common facilities for Sysco.

The architects conceptualized the two office towers as simple glass boxes floating above two-story, stone-clad bases. The building bases reference the height of the glass lobby entrance to the conference center. The auditorium's similar stone-clad mass anchors the south end of the complex. This relationship provides a unified visual line connecting all components of the project. The landscape design reinforces this unity by creating a linear automobile court for drop-off and visitor parking integrated with continuous *allées* of trees and planting. The contrast of this more urban streetscape with the surrounding suburban landscape is striking and gives Sysco a unique identity.

In concert with Sysco's interest in providing a high-quality workplace for its employees, the design team presented a LEED strategy for accomplishing that goal as well as providing potential energy savings for the company. Based on energy modeling, the building is predicted to be 25 percent more efficient than a building built to the current City of Houston energy code. The long east-west axis provides proper orientation for the two towers. On the north side, floor-to-ceiling glass is shaded from glancing east and west light by vertical fins. Similar glass on the south elevation is shaded with horizontal projections. East and west reflective glass is reduced in size by a spandrel wainscot. A large, louvered porch protects the east-facing glass of the conference center's two-story lobby. Daylight is utilized for interior lighting throughout the spaces with sensing light fixtures providing artificial light when required.

Unusual for commercial office buildings, a raised-floor system is installed throughout to allow for an under-floor, low-volume air delivery system. This provides localized control of air distribution as well as flexibility for future office planning. The use of low-VOC paint, sealants, adhesives, and carpet protects occupants from harmful emissions. Closed-door offices are located at the east and west ends of the buildings, allowing the floor-to-ceiling north and south glass to provide ample light and outdoor views.

Kirksey inventively designed the buildings' interior office spaces to meet Sysco's value goals. New office standards are established with a focus on flexibility and lightness. Major public and private spaces are enriched with color and scale in the use of stone, glass, and veneered wood planes that often fold from the vertical wall to the horizontal ceiling plane. Artificial lighting is integrated into these materials in varied applications. With a focus on workplace, sustainable design, simplicity, and value, the project team has designed a building complex that reflects Sysco's corporate values for an enhanced commercial headquarters building. With attention to both generic office space and specific use space, the architects have created an enriched work environment. The project is an important example of environmentally responsive and market-savvy design decisions to which all commercial building design should aspire.

Geoffrey Brune, AIA, is principal of GBA Architecture and teaches at the University of Houston.

PROJECT Ronald McDonald House, Austin
CLIENT Ronald McDonald House of Charities
ARCHITECT Eckols & Associates AIA
DESIGN TEAM Donald Eckols, AIA; Wanki Kim, AIA; Andrew Clements, AIA; Cliff Koeninger, AIA; Nate Winsowich
CONTRACTOR The Beck Group
CONSULTANTS Lym Architect (associate architects); Structures (structural); Tom Green & Company Engineers (MEP); Bury+Partners (civil); TBG Partners (landscape); Center for Maximum Potential Building Systems (LEED)
PHOTOGRAPHER Wade Griffith

RESOURCES **RECREATIONAL FACILITY AND PLAYGROUND EQUIPMENT**: Kompan Galaxy; **BENCHES**: Landscape Forms; **CONCRETE MATERIALS**: Cemex; **MASONRY VENEER ASSEMBLIES**: CALPLY; **STONE VENEER**: Lone Star Stone; **WATERPROOFING**: W.R. Meadows; **BUILDING INSULATION**: Owens Corning; **ROOF GARDENS**: Hydrotech; **WOOD AND PLASTIC DOORS AND FRAMES**: Marshfield DoorSystems; **ACCESS DOORS AND PANELS**: Ruskin; **GLASS**: Guardian; **TILE**: Daltile; **GYPSUM FABRICATION**: USG; **TILE**: Daltile; **FLUID APPLIED FLOORING**: LAMBERT Southwest, Prosoco; **PAINTS**: Benjamin Moore; **PROTECTIVE COVERS**: C/S Group; **SIGNAGE**: BIG; **ARCHITECTURAL MODEL**: Flying Fish Designs

Ronald Goes Platinum

by LAURIE ZAPALAC

It is hard for most of us to imagine the range of emotions and needs that a family experiences when a child is sick enough to require hospitalization. The staff and designers of the new Ronald McDonald House in Austin have clearly given this a lot of thought. The project offers a welcome refuge for parents and loved ones who keep vigil as their child undergoes treatment nearby at the Dell Children's Medical Center. The latest of a national network built by Ronald McDonald House Charities, the Austin facility also merges purposeful design with sustainability. The architects' success in creating an energy-efficient building has been recognized with the highest rating by the U.S. Green Building Council, making the Ronald McDonald House in Austin one of only three buildings in Texas to achieve LEED Platinum.

The Ronald McDonald House is the newest component of the expansive redevelopment currently underway at Austin's former Robert Mueller Municipal Airport. Known as "Mueller," the mixed-use development follows new urbanist and "smart growth" planning models that have had a hand in shaping the criteria for the USGBC's Leadership in Energy and Environmental Design program. Yet, while the project team was committed to gaining the top LEED rating for the project, no one let the LEED point system obscure the overarching goal of creating a building that advances the client's mission—that is, directly improving the health and well being of children. As explained by Kent Burress, CEO of the Austin Ronald McDonald House, "Every decision we made in the project was measured against two criteria: First, how does it help us meet our mission? And, second, how does it help sustain the organization over the long term?"

In terms of garnering LEED points, the project benefited from Mueller's access to mass transit and the development's comprehensive stormwater management system. The project was initially designed with its own system for harvesting rainwater for irrigation, but greater gains – LEED-wise as well as financial – were available by tapping into the city's supply of reclaimed graywater and through strategies to decrease user consumption rates in the first place.

While the transformation of the old airport engendered LEED points for the Ronald McDonald House, the project's site also presented design challenges due largely to its being in one of Mueller's busiest areas. Located adjacent to the new hospital, and separated only by a vast field of surface parking, the Ronald McDonald House balances the need to serve as an oasis in this somewhat inhospitable environment with the need to maintain a connection between children undergoing treatment at the medical center and their families staying across the way.

Equally important as unobstructed sight lines was the need for the architecture to convey a sense of friendliness and hopefulness, which led the architects with Eckols & Associates AIA in Austin to articulate the front facade with gently curving wings extending from either side of the main structure. "We felt extremely strong about the curve of the building," firm principal Don Eckols, AIA, said, "and what it did for the relationship of the building to the site, the sun angles and sight lines, and the overall feeling of the architecture, which we wanted to convey a certain playfulness." Engineer Cameron Labunski of Tom Green & Company Engineers worked with Eckols and Wanki Kim, AIA, to test and refine the volume based upon solar orientation models and to develop the building envelope to meet the stringent infiltration parameters of the building's mechanical system. Included within the building's exterior palette of steel and glass are areas of cultured synthetic stone (composed partially

THIRD FLOOR PLAN
1 residential unit

SECOND FLOOR PLAN
1 residential unit
2 laundry
3 corridor
4 lounge
5 exercise room
6 video game room
7 computer room
8 storage
9 rooFgarden

FIRST FLOOR PLAN
1 residential unit
2 laundry
3 corridor
4 manager's lounge
5 mechanical
6 oFFice
7 loBBy
8 dining
9 kitchen
10 playroom

of recycled fly ash). Though the intent seems to be to tie the building contextually to the medical center and provide a sense of heft in an economical way, one wonders whether the design would be even more streamlined without the added veneer.

Since the creation of the first Ronald McDonald House in 1974, the concept has continued to be refined. In addition to providing families a place to stay (with minimal financial impact), the Austin Ronald McDonald House offers families two other important things that often go lacking during the days (and sometimes weeks and months) in which a hospital stay is necessary for a sick child: a sense of control over options for activities and environment, and most important, a sense of normalcy. In providing these services, the Ronald McDonald House helps families tend to their own physical, emotional, and social needs so they can rejuvenate on a daily basis and maintain their focus in support of the sick child, the entire family unit, and even other families who are also staying there.

The program reconciles elements of a hotel, residence, retreat center, hospital waiting area, and an office environment, bringing them all into one building to meet disparate objectives not only through the creation of space, but also through guidelines for the use of the building. Volunteers prepare lunches and dinners, but the kitchen can also be used for guests who would like to cook. Meals are eaten in the kitchen and common dining area, which allows these to function as the center, or hearth, of the house, while also simplifying the design and maintenance of guest suites. Centrally located common areas on the upper floors include a workout room, a library for doing homework or computer research, a video game room, an area for playing games and watching movies, and a laundry room. The Ronald McDonald House also offers day passes to make these facilities available to Austin families whose children are receiving treatment at the medical center. Thirty guest suites, all of which include small living rooms, function as the most private areas of the building. Importantly, each guest room maintains a line of sight to the medical center so families and their hospitalized children can feel connected. Three extensive-system roof gardens provide elevated lookouts over the entire complex from a protected and green refuge.

As with the Dell Children's Medical Center, indoor air quality is a major concern at the Ronald McDonald House. To exceed indoor air quality standards while operating with high efficiency, the design team developed a system that is the first of its kind in Central Texas. Operating with the use of a dedicated outdoor air handling unit, outdoor air is distributed throughout the entire facility, individually to each space, while expending far less energy to bring air within the target ranges for air temperature and humidity. Critical to the success of this system is proper building pressurization and dew point control of the indoor air to prevent elevated humidity levels and resulting microbial activity. The result of these and many other energy saving features is a total building energy use that achieves a 65-percent energy savings over standard code-compliant systems.

The Austin Ronald McDonald House serves as an important reference point, both in the continued development of the Ronald McDonald House concept and in the quest to achieve holistically sustainable buildings and institutions within our communities. It also demonstrates the benefit of aiming for LEED Platinum, especially when innovation derives from combining both mechanical and programmatic solutions.

Laurie Zapalac is an Austin-based design consultant specializing in cultural resource planning.

PROJECT Walter P Moore Houston Office Relocation
CLIENT Walter P Moore
ARCHITECT Gensler
DESIGN TEAM Stephanie Burritt; Charley Kifer, AIA; Kitten Muckleroy; Tracie Smith; Rebekka Glass; John Beilue; Amy Glesone; Maria Perez; Linda Brown; Di Ann Hassloch
CONTRACTOR D.E. Harvey Builders
CONSULTANTS Cushman & Wakefield of Texas (broker/project manager); Letourneau Interests (furniture); Shelving Exchange (filing system); Wylie Consulting Engineers (MEP); Walter P Moore (structural); SST (security); HFPA Acoustical Consultants (acoustical); CharterSills (lighting); A&E, The Graphics Complex (graphics); Computer Power Solutions (power); ICS (voice/data/phone); Lesley & Associates (facility relocation)
PHOTOGRAPHER Chas McGrath

RESOURCES STAIR TREADS: Lafarge North America; **STONE**: Stone Marketing (Sigma Marble Granite & Tile); **METAL MATERIALS**: Berger Iron Works; **WOOD RAILINGS AND HANDRAILS, ARCHITECTURAL WOODWORK, LAMINATES, SPECIALTY DOORS**: CRC Mastercraft; **CABLE CLAMPS**: Tripyramid Structures; **STRUCTURAL STEEL AND STAIR LANDINGS**: Schuff Steel; **STRUCTURAL STAIRCASE CABLES**: PFEIFER Cable Structures, North America; **STEEL RAILINGS AND HANDRAILS**: Vision Products; **METAL FRAMES**: Frameworks; **WOOD AND PLASTIC DOORS AND FRAMES**: VT Industries; **GLASS**: Vision Products; **TILE**: Estrie, Armstrong; **ACOUSTICAL CEILINGS**: Armstrong; **WALL COVERINGS**: Eganwall, WallTalkers; **PAINT**: Benjamin Moore, Sherwin Williams; **CARPET**: Interface; **SOUND MASKING**: Audio Visual Solutions

Interconnected

by DAVID JEFFERIS

More and more architecture and engineering firms are rethinking the creative process, trading traditional concepts of rigid hierarchical structure for a new model intended to foster spontaneous, informal interaction. Open office environments are the most conspicuous factor, although elements of corporate branding are also being subtly integrated into the workplace. For Walter P Moore's new national headquarters, Gensler pursued a holistic approach that seamlessly blends public image and creative performance.

The project began with the architect and client working together to find the best location, with Walter P Moore eventually leasing three floors of the Fulbright Tower in downtown Houston. The move from its suburban site to a more central location was completed earlier this year. Not only is the engineering services firm now closer to most of its major clients, the Fulbright Tower (designed by Caudill, Rowlett, and Scott, and built in 1982) is connected to a network of offices, shops, and restaurants. Also, the windows of the new headquarters overlook dynamic views of the city, including the recently completed Discovery Green Park. Adding to the Fulbright's allure was its proximity to the Houston Metro Light Rail, allowing convenient access to and from downtown and the Texas Medical Center.

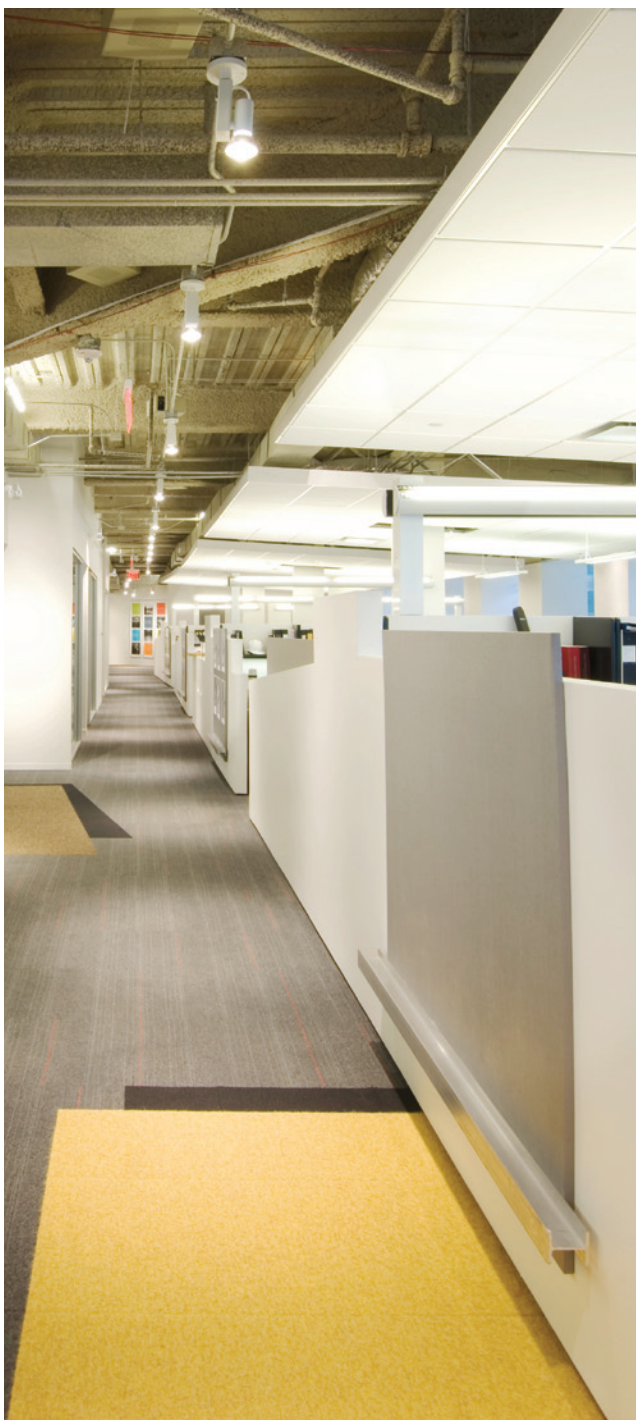
The new headquarters contain a broad range of engineering disciplines and administrative services on levels 10 through 12. Recognizing that maximizing communication among these diverse departments is essential to successful interoffice collaboration, the design team cut through the concrete floor plates to create a triple-height atrium and inserted an interconnecting stair. By locating major conference rooms, break areas, and key support departments around this central core, the design encourages constant circulation and opportunities for interaction between those who might otherwise only see coworkers from their own department.

Expanding on this idea of collaboration, Gensler distributed flexible meeting spaces throughout the office. Large tables for informal meetings are scattered throughout the open plan, and pairs of private offices share small conference rooms digitally wired for presentations. On the middle floor, large conference and presentation rooms are similarly equipped for this technical capability. The primary presentation room, centrally located just off the reception area and known as the "visionarium," employs a trio of LCD projectors to display and "walk" clients through detailed three-dimensional BIM projects.

Tying all of these public spaces together, the interconnecting stair serves as a focal point for employees and visitors alike. Walter P Moore wanted to create a technical centerpiece to showcase its dedication to innovative design, so the team at Gensler suggested Walter P Moore hold a competition among its engineers from around the country to design a stair that would "defy gravity." The winning design, by Mark Waggoner, PE, a principal in the firm's Austin office, adapts a concept for cantilevered banks of seats used in stadium projects. Each run uses the basic elements of a stair as components of a hybrid Vierendeel truss. Guardrails, composed of 1.5-inch diameter cable typically used in long-span roof construction, function as the top chord of the truss. The stair treads, each individually pre-cast from high-strength concrete, form the bottom chord. Large-diameter steel rods make up the connecting web, and the entire assembly is cantilevered from vertical steel members at the top of each run. The elimination of a traditional stringer results in a stair that appears to float in space with no support from the floor below. Marco Bernal, PE, a senior associate in the Houston office, designed the landings and bridge.

ELEVENTH FLOOR PLAN

1 training
2 conference room
3 visionarium
4 Breakroom
5 restrooms
6 mechanical
7 gallery



The work areas are organized in layers around the vertical core to maximize access to daylight and views of the surrounding city. Catering, reproduction, and storage areas are grouped around the service elevators to facilitate deliveries and contain the associated clutter. Suites of glass-front private offices comprise the next layer, with workstations forming the final band at the edges of the floor plate. The Fulbright Tower's lack of an internal column grid makes this type of open plan especially effective.

Faced with the engineers' concerns about working in repetitive "ice-cube trays," the architects attempted to re-create the dynamic variety of an urban environment in their design of the workstations. As a result, varying partition heights surround each cluster of 9x10-foot workstations with full-height sections for cable runs oriented perpendicular to the exterior windows. The regular order of the plan is broken up by groups of workstations set slightly off-grid. A neutral finish palette based on Walter P Moore's corporate brand colors is accented by colored fabric panels used to display diplomas, certificates, and current projects. Patches of colorful "graffiti" also enliven the gray carpet.

The design team's response to geometric irregularity in the Tower's floor plate also heightens the effect of the interior's cityscape aesthetic. The service core of the Fulbright Tower is set at a 45-degree angle to the rectangular floor plate, an arrangement that made it difficult to run a continuous ceiling grid. The designers chose to leave much of the ceiling exposed, suspending "clouds" of acoustic tile above each cluster of workstations, seemingly forming a sky above the "buildings" below. Above the tiles, new ductwork is integrated into the structure with a layer of paint applied in splatters to match the existing spray-on insulation.

The play between revealing existing structure and strategic insertion of new work drives the detailing throughout the project, both celebrating the engineer's contribution to building design and functioning as a working model for exploration. Fasteners are exposed, the raw concrete floors are clear sealed in the public spaces, and the rough edges of holes cut in the floor for the central stair are left unfinished. Even the IT department's server farm is displayed behind a glass wall. Doors for private offices, fabricated from off-the-shelf aluminum and glass office fronts, are hung from standard sliding door hardware. The walls are painted white with matching bases, so that the whole interior space reads as a simple composition of dynamic planes that navigate the opposing geometries of the tower's floor plan.

Decisions at each stage of the design process were affected by concerns about sustainability, earning the project a LEED Silver certification. Proximity to restaurants, green space, and public transportation influenced the selection of Fulbright Tower. Rapidly renewable and low-VOC materials such as fiberboard and bamboo plywood are used throughout the project. Extensive use of daylighting and highly efficient fixtures help reduce the firm's overall energy consumption. While not directly related to sustainability, the project's minimal detailing represents an aesthetic commitment to the principle of doing more with less.

A contemporary office must do more than provide service to clients and a paycheck to employees. Many firms are beginning to use design to foster improved creative performance among employees while presenting the image of the firm as a place of innovation in line with the way the firm views itself. By re-imagining its space, Walter P Moore has re-invigorated its corporate image and re-invented its way of working.

A recent architectural graduate of Rice University, David Jefferis works in Houston.

PROJECT McKinney Green Building, McKinney
CLLIENT Wereldhave USA
ARCHITECT HDR Architecture, Inc.
DESIGN TEAM Curt Parde; Bernard Bortnik, FAIA; Dennis Patrick, AIA; David Hale; Randy Hagens, AIA; John Niesen, AIA
CONTRACTOR Austin Commercial
CONSULTANTS Air Engineering and Testing (commissioning agent); Andres Construction Services (owner program manager)
PHOTOGRAPHER Mark Trew Photography

RESOURCES **PAVERS**: Pavestone; **OUTDOOR ACCESSORIES**: Landscape Forms; **CAST STONE**: United Cast Stone; **BRICK**: Acme; **STONE VENEER**: Mezger Enterprises, Cold Spring Granite; **WATERPROOFING**: Grace Construction Products; **BUILDING INSULATION**: Johns Manville; **METAL AND WOOD DOORS AND FRAMES**: Eggers Industries; **ENTRANCES AND STOREFRONTS, GLASS, GLAZED CURTAINWALL**: Haley-Greer; **TILE**: Pantheon, Crossville, Laticrete; **ACOUSTICAL CEILINGS**: Armstrong; **PAINT**: Sherwin Williams; **CARPET**: Interface, Roppe; **ACCESS FLOORING**: Haworth; **BLINDS**: Bali

Green All Over

by JONATHAN P. ROLLINS, AIA

McKinney Green was the first LEED Platinum pre-certified shell and core project in Texas, to date one of only three in the state to achieve the highest rating from the U.S. Green Building Council. Sustainability was established as a priority at the outset of the project by developer West World Holding Inc., a division of a Netherlands-based company. Advocating an integrated process, their intent was to build on knowledge gained from this project in future U.S. projects. After HDR was selected as the architect, Austin Commercial Construction was engaged early in the process for its experience in managing information as well as its record of completed projects.

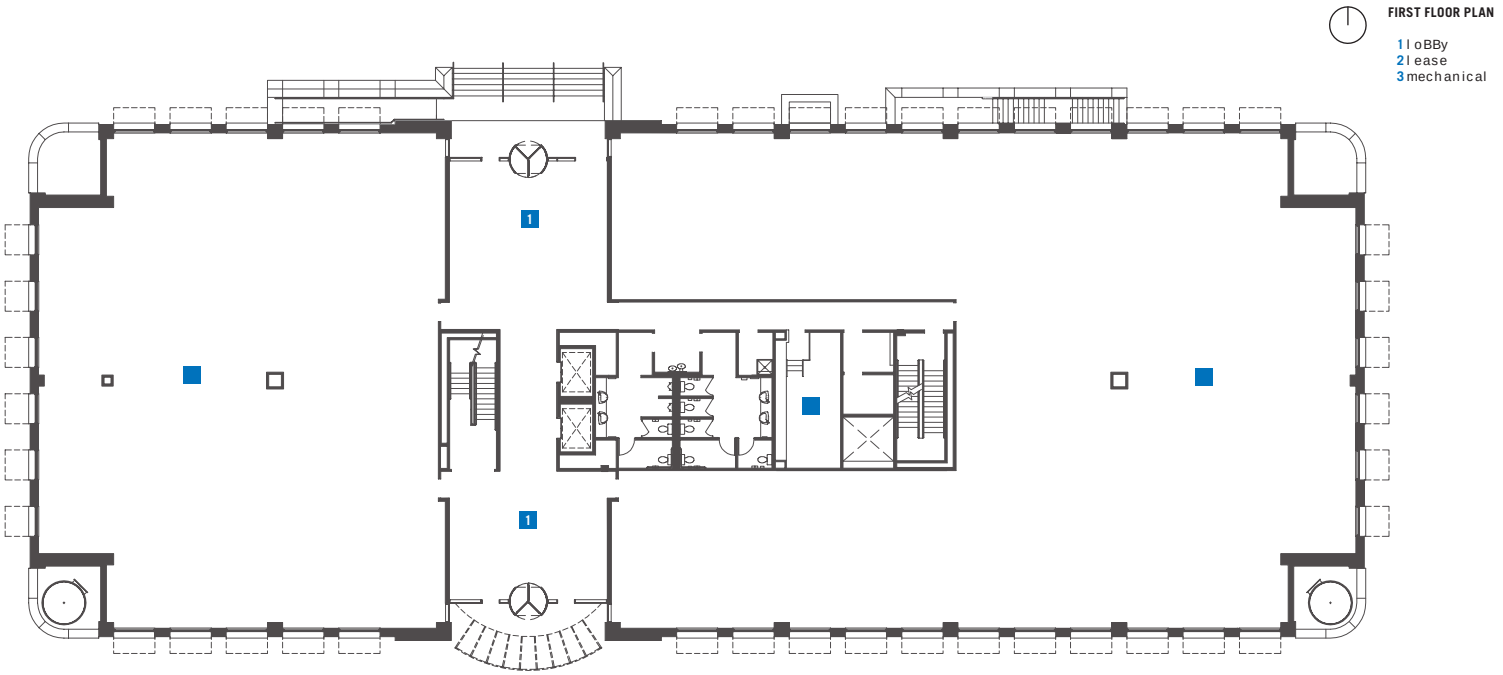
The three-story, 61,000-square-foot office building does not appear radically different from conventional construction, but one visible component of the innovative technologies employed is part of the building's stormwater management system. All of the parking and drives on the three-acre site are permeable, with concrete pavers laid over a drainable base. The pavers are placed atop an 18-inch-thick layer of sand and gravel that filters stormwater before it is collected in an underground storage system with a capacity of 350,000 gallons. In addition, two 9,000-gallon above-ground storage tanks installed at the corners of the building function as cisterns, collecting rainwater from the roof, and are interconnected with the underground storage system. This system provides 100 percent of the water used for irrigation, as well as retaining stormwater on site, thereby taking some of the burden off of the municipal storm system.

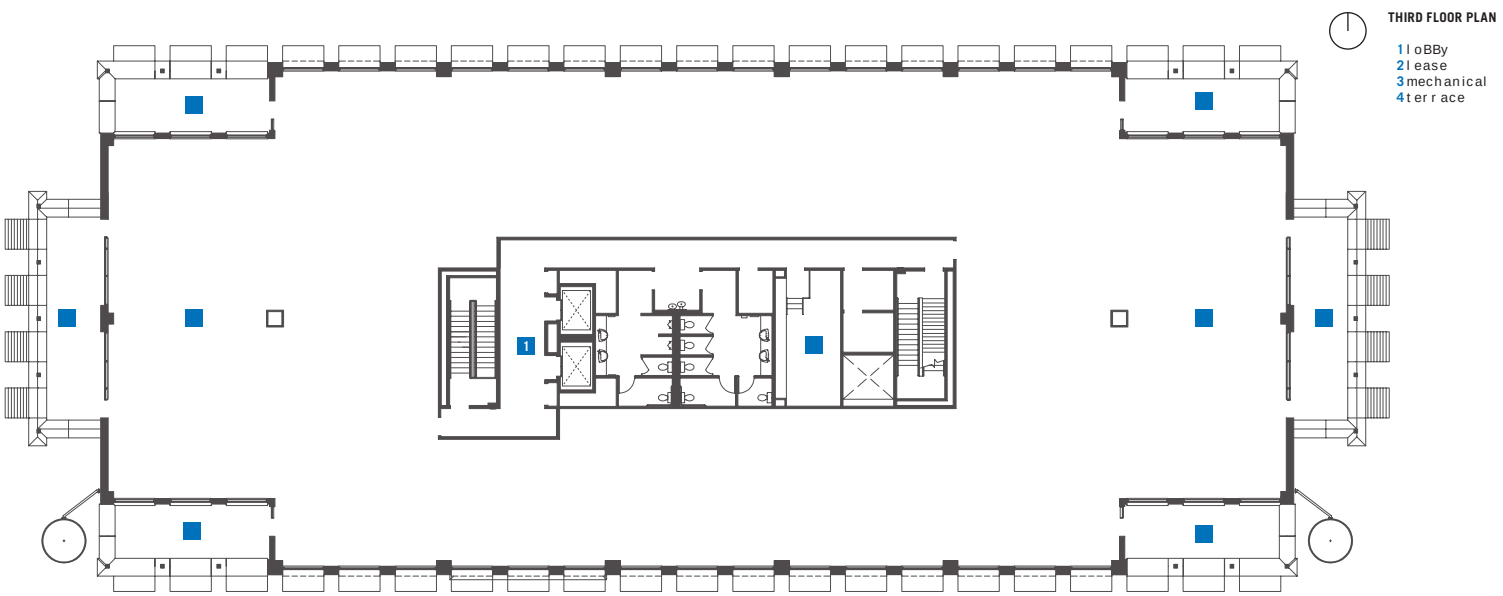
The building's mechanical system, too, is integrated with the development of the site. Rather than using a cooling tower or chiller, the HVAC system uses heat pumps and geothermal wells to reject heat during the cooling season. A total of 120 geothermal wells, each 350 feet deep, are scattered across the three-acre site. Circulating pumps drive liquid coolant through a closed-loop system, exchanging heat with the earth, which remains at constant temperature at that depth. Air handlers, incorporating energy recovery on the make-up units, circulate air through an underfloor distribution plenum. All of the tenant spaces utilize an 18-inch raised-access floor system, providing an air path and allowing flexibility for power, data, and communications systems as well. Floor diffusers at the building's perimeter are served by fan-powered boxes in the floor plenum, which provide terminal heating and cooling as required. The majority of diffusers, however, are not ducted.

The building's narrow dimension was designed to take maximum advantage of daylighting to reduce energy use by allowing natural light to reach nearly all of the tenant space. Windows use conventional one-inch insulating lites, utilizing tinted low-e glass for the outboard lite and clear glass inboard. Sunscreens divide each unit into a lower vision lite and an upper daylight panel. The sunscreens are configured differently on each elevation to better respond to solar orientation, blocking much of the direct solar gain on the vision glass. The sunscreens also serve as light shelves, reflecting light back towards the ceiling and deeper into the space, where it is reflected again to light the space below.

Also, on-site energy production was incorporated into the design. All of the building's hot water is provided by a solar rooftop system, and a rooftop photovoltaic array provides approximately 10 percent of the building's electricity.

Many of the building's sustainable features are not unconventional, but merely good practice in today's energy climate. Tenants are encouraged to finish out their spaces using the same sustainable principles which guided the design of the building shell, and the finish-out





of HDR's offices received a LEED Silver certification. Tenants pay their own utilities, so they benefit from the overall building performance, which uses 50-60 percent less energy than comparable conventional construction. With the incorporation of innovative technologies like geothermal heat pumps and daylight harvesting, however, thorough commissioning was critical to ensure that all of the building systems were functioning properly, and extra training for users and maintenance staff was required as well. Research has indicated that sustainable work environments can result in more productivity and greater comfort for building occupants. Reduction of indoor chemical and pollution sources, specification of low-VOC alternatives, and thorough flushing of the HVAC system prior to occupancy can promote user health and reduce absenteeism. The McKinney Green building is a platinum example of sustainable practices put into action.

Jonathan P. Rollins, AIA, is a principal with Good Fulton & Farrell in Dallas.

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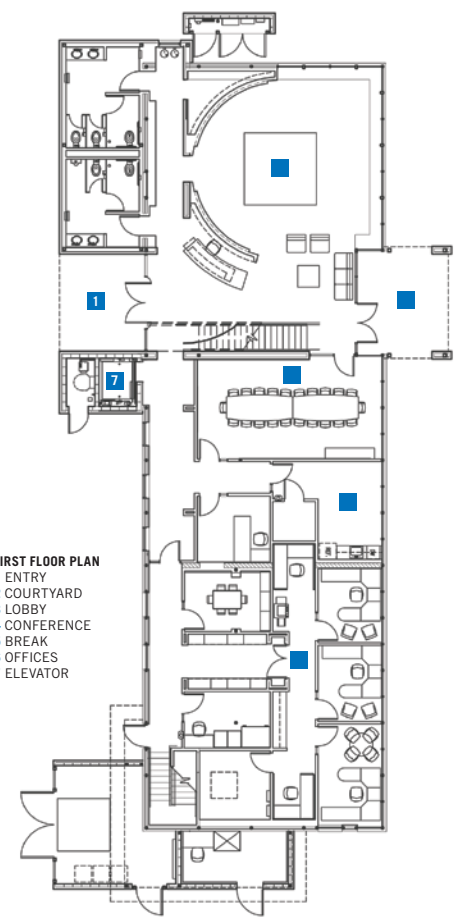
Mueller Central

PROJECT Mueller Central, Austin
CLIENT Catellus Development Group
ARCHITECT Studio 8 Architects
DESIGN TEAM Milton Hime, AIA; Lisa Dambold, Assoc. AIA; Jennifer Carter, IIDA; Paul Detke, AIA; Steve Meyers, AIA; Meredith Cloud; Lee Ann Ford
CONTRACTOR Zapalac/Reed Construction
CONSULTANTS Bay & Associates (MEP); Haynes Whaley Associates (structural); Coleman & Associates (landscape); Bury+Partners (civil); emc Creative (environmental graphic design)
PHOTOGRAPHER McConnell Photography

RESOURCES **LIMESTONE**: Mezger Enterprises; **RAILINGS AND HANDRAILS**: Artec; **LUMBER**: Temple Inland; **ARCHITECTURAL WOODWORK**: The Canadian Eco-Lumber Coop (Buda Woodworks); **SOLID POLYMER FABRICATIONS**: EnviroGLAS; **BUILDING INSULATION**: DOW; **METAL ROOFING**: Berridge; **WOOD AND PLASTIC DOORS AND FRAMES**: Marshfield DoorSystems; **GLASS**: PPG; **TILE**: Daltile; **ACOUSTICAL CEILINGS**: Armstrong; **FLOORING**: WFI Bamboo; **PAINT**: Sherwin Williams; **ELEVATOR**: Kone; **LIGHT FIXTURES**: Louis Paulson

When the Robert Mueller Municipal Airport shut down in 1999, the Austin City Council chose Catellus Development Group to transform the 711-acre site into a mixed-use "urban village." As part of the development, local architectural firm Studio 8 was commissioned to design the first component—the renovation of an existing building that housed a private air terminal and an administrative office building. The architects wished to maintain a sense of the building's original identity while adapting it to its new use as a visitor information center and main office for Catellus. Completed in May 2007, the 7,620-square-foot building retains its original steel framing system and brick facade to honor its historical significance, but also incorporates modern elements to help the building blend seamlessly into the new development. Mueller Visitors Center has set the sustainability standard for other projects at the old airport by achieving LEED Gold certification. Other existing buildings on the site also are scheduled to be repurposed, including the Browning Hangar and the iconic air traffic control tower, as the mixed-use Mueller development continues to evolve.

EMMA JANZEN



FIRST FLOOR PLAN
1 ENTRY
2 COURTYARD
3 LOBBY
4 CONFERENCE
5 BREAK
6 OFFICES
7 ELEVATOR

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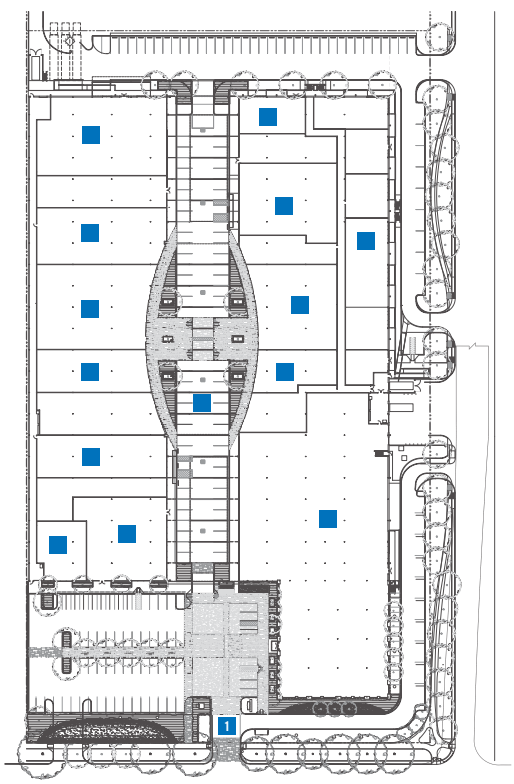
International on Turtle Creek



FLOOR PLAN
1 ENTRY DRIVEWAY
2 SHOWROOM
3 CAFÉ
4 CENTRAL COURTYARD

PROJECT International on Turtle Creek, Dallas
CLIENT Jim Lake Companies
ARCHITECT Good Fulton & Farrell Architects
DESIGN TEAM David Farrell, AIA; Chris Andersen, AIA; B. Allison Brooks, AIA
CONTRACTOR District Construction
CONSULTANTS Brockette/Davis/Drake (civil); TechniStructures (structural); Linda Tycher & Associates (landscape); James Johnston & Associates (MEP)
PHOTOGRAPHER Charles Davis Smith, AIA

RESOURCES **MASONRY UNITS:** Palestine Concrete Tile; **RAILINGS AND HANDRAILS:** Amadeus Metalworks; **METAL ROOFING:** Galvalume; **ENTRANCES AND STOREFRONTS:** Vistawall; **HIGH PERFORMANCE COATINGS:** Sherwin Williams

The 250,000-square-foot International Harvester parts warehouse, located in the Old Trinity Industrial District near downtown Dallas, was originally constructed in 1948 and recently redesigned by local architecture firm Good Fulton & Farrell. Focused on contributing to the growth of Dallas' Design District, the firm divided the warehouse into smaller units ranging from 1,549 square feet to 39,637 square feet, intended to house an assortment of furniture and interior design showrooms. The architects transformed the site by carving out an open-air corridor through the middle of the building. The meticulously landscaped avenue serves as a thoroughfare for drivers, a pedestrian-friendly walkway, and has established convenient access to parking facilities. To promote a sense of historical continuity, the split-building design retained the original steel roof skeleton, and exterior brick components were painted white to streamline the building's external appearance. Expansive windows and natural light are abundant throughout the complex, including 75 skylights and floor-to-ceiling windows in each showroom to make interior spaces more inviting and ensure a healthy working environment for employees. International on Turtle Creek is a modern and refined collection of showrooms, design firms, and restaurants, which will contribute to Dallas' Design District for years to come.

EMMA JANZEN

Commissioning Exterior Enclosures

New guidelines from the National Institute of Building Sciences detail rigorous process

by WAGDY ANIS, FAIA

Adapted with permission from the National Institute of Building Sciences/Building Enclosure Technology and Environment Council, this article originally appeared in the Winter 2008 issue of Journal of Building Enclosure Design.

The commissioning process is a quality-oriented process for achieving, verifying, and documenting that the performance of facilities, systems, and assemblies meets defined objectives and criteria. It assumes that owners, programmers, designers, contractors, commissioning team members, and operations and maintenance entities are fully accountable for the quality of their work. The process uses methods and tools to verify that the project is achieving the owner's requirements throughout the delivery of the project. Beginning at project inception (during the predesign phase), commissioning continues for the life of the facility (through the occupancy and operations phase) and includes specific tasks to be conducted during each phase in order to verify that design, construction, and training meet the owner's project requirements.

The National Institute of Building Sciences' *2006 Guideline 3, Exterior Enclosure Technical Requirements For the Commissioning Process* is a new guide that focuses on the implementation of this process to building exterior enclosure systems and describes the specific tasks necessary to that implementation. It can be applied to both new construction and renovation projects. The commissioning process structures the design and construction process to increase quality. It does not require the owner to employ a specific outside expert as the commissioning authority and nothing would prevent the owner from selecting the project design or construction firm to perform commissioning, if the commissioning authority is properly qualified and is sufficiently independent by being positioned outside the specific project team within the firm.

For a given project, the commissioning role might be performed by a number of players—owner, program manager, construction manager, third-party commissioning authority hired by the owner, LEED-required commissioning authority, general contractor, the MEP contractor, etc. For a project, each player will have a mixed set of characteristics, including independence, expertise, and project-related knowledge. Whoever hires the commissioning authority is doing so in order to provide the project with an independent set of eyes that verify and assure the required performance of the building. This required performance should be defined and found in the project documents and specifications. The level of effort of the commissioning process and size of the commissioning team for a given building can be strongly influenced by such factors as the owner's preferred level of building quality, the level of risk the owner will accept, as well as building size, type, and complexity.

Total Building Commissioning

The Total Building Commissioning series of guidelines is a family of guidelines following *ASHRAE Guideline 0*'s recommended structure. *Guideline 3 2006* describes the technical requirements for the application of the commissioning process in *ASHRAE Guideline 0-2005* that verifies the building exterior enclosure systems achieve the owner's project requirements. It includes requirements for:

- exterior enclosure systems to fully support the commissioning process activities;
- verification during each phase of the commissioning process;
- acceptance during each phase;
- documentation during each phase; and
- a systems manual and training for operations and maintenance personnel and occupants.

The primary focus is on new buildings. The procedures, methods, and documentation requirements apply to new construction and to on-going commissioning process activities or requirements of buildings and facilities, or portions thereof. They also can be applied to rehabilitation projects, retro-commissioning, or re-commissioning projects.

Milestones

Pre-design is a preparatory phase of the project delivery process in which the owner's project requirements are developed and defined. General information about the overall project is gathered, including: program requirements (e.g., facility interior conditions); community context (e.g., reflectance limits on glazing); codes, regulations, standards, and guidelines; site and climate (e.g., outdoor air design conditions); facility functions; construction budget; building delivery schedule; training requirements; documentation requirements; and operational and maintenance budgets. Information for the exterior enclosure system is gathered as part of this process and documented as the enclosure portion of the owner's project requirements.

Commissioning process objectives relative to building exterior enclosure systems include developing the owner's project requirements; identifying a scope and budget for the commissioning process; developing the initial commissioning plan; and acceptance of pre-design phase commissioning process activities.

During the design phase the owner's project requirements are translated into a design intent and represented in construction documents.

Early in the schematic design phase, rough concepts of building massing, internal layout, appearance, and materials are developed and tested against the owner's project requirements to arrive at a solution that best fulfills all criteria. Analysis of conceptual solutions should include impact of inter-related systems. During this phase, a document called the Basis of Design is created that clearly conveys the assumptions made in developing a design solution that fulfills the intent and criteria in the Owner's Project Requirements document. During schematic design, the owner's project requirements are evaluated and updated to balance scope, budget, and quality. Narrative descriptions of building exterior enclosure systems (e.g., roof, exterior walls, floors, windows, thermal mass) are developed and included in the Basis of Design document and the commissioning plan is expanded to include details of construction phase, occupancy, and operations phase activities.

In the design development phase more detailed drawings (typically large-scale wall sections, elevations and plan details) and preliminary specifications for the exterior enclosure systems are developed in support of the solution represented in the Basis of Design document. Commissioning procedures are established by the commissioning team for incorporation into the construction documents. The commissioning authority should verify that the design team agrees upon these procedures. The owner's project requirements and the Basis of Design document are updated to reflect ongoing decisions, and the design development documents are verified against them.

Construction documents indicate the scope of work, the required level of quality and all other administrative and procedural requirements of the contractor. They must also include requirements for the contractor to implement commissioning activities. Commissioning process objectives specific to the exterior enclosure include verifying that each exterior enclosure system documented in the Basis of Design fulfills the requirements within the owner's project requirements document.

The Basis of Design documentation is developed during the schematic design phase and includes the following as a minimum:

- A description of each system option is considered, such as the type of building exterior enclosure systems, sub-systems, materials and components, and the interaction of the building exterior enclosure system with the heating, cooling, mechanical, and natural ventilation, lighting, building interior, and other systems. It describes how the designer intends to meet the building exterior enclosure-related owner's project requirements. For appropriate exterior enclosure systems or components, it provides an outline sequence of operations.
- The reasoning for the selection of the final building exterior enclosure system, including supporting information describing fulfillment of criteria in the owner's project requirements should be outlined.
- The inter-relationship of each exterior enclosure system with other systems (e.g., daylighting versus artificial lighting, impact of skin thermal performance on mechanical systems) should be examined.
- Operational assumptions for any operating portions of the exterior enclosure system that are either manually or automatically controlled must be included, specifically facility and space usage, schedules (occupancy and operational), diversity, and annual operation and maintenance budget and personnel capabilities.
- Calculations including the electronic inputs and outputs of modeling programs or copies of manual calculations must show the progression from assumption to calculation to the construction documents.
- List facility, system, and assembly performance assumptions for calculations for exterior enclosure loads on systems, and for exterior enclosure interactions with other building systems at design day conditions and at part load conditions over time.
- List analytical procedures and tools used during design, including manual and software (including version) analysis and simulation models.
- List environmental conditions including, exterior/interior pressure relationships, airflow and velocity.
- List codes, standards, guidelines, regulations, and other references that influenced the design of building exterior enclosure systems.
- List owner guidelines and directives that influenced the design of building exterior enclosure systems.

Commissioning process requirements for the construction documents phase specific to the exterior enclosure specify that systems be documented and tested and that a schedule of building exterior enclosure related commissioning process activities for the construction phase and the occupancy and operations phase be included. The schedule should identify critical times for witnessing testing activities, building exterior enclosure systems, and equipment accessibility for maintenance and commissioning, completion of construction checklists, and activities relative to substantial completion/project closeout.

Requirements include integration of specific component performance documentation requirements and use of construction checklists into the relevant building exterior enclosure specification sections (and others as appropriate), with cross-references. In addition, building exterior enclosure commissioning process activities should be integrated into the relevant building exterior enclosure specification sections as required.

Review of Design Documents

A general quality review for building exterior enclosure systems should focus on completeness, organization, and readability of drawings and specifications with attention to details, schedules, controls, phasing, and legends.

In a coordination review, key system elements and random samples (10 to 20 percent)

of other portions of the building exterior enclosure systems are reviewed to evaluate the coordination accomplished within and among disciplines. This includes reviewing for interfaces among disciplines and checking the design against the owner's project requirements.

Through the building exterior enclosure system-specific review, the commissioning authority should verify that, within the areas selected for review, the design complies with the owner's project requirements. The intent of this review is to determine if there are systematic errors for exterior enclosure materials and interface coordination, not to fully check the drawings. As with coordination review, it is the responsibility of the design team to check the drawings for coordination, appropriateness, and accuracy.

The commissioning authority should ensure that a review of the specifications is performed to determine completeness and applicability to the project. A review of 10 to 20 percent of the building exterior enclosure specification is performed in detail for verification of compliance with the owner's project requirements.

In addition, approximately 20 percent of the following should be reviewed: schematic design documents; design development documents; and construction documents. The review should verify that the design solutions are in conformance with the Basis of Design document and will fulfill the requirement of the owner's project requirements.

Construction Phase

Commissioning process activities to be performed by the various members of the construction-phase commissioning team are described in *ASHRAE Guideline 0-2005 (Section 7.2)*. Additional requirements pertaining to building exterior enclosure may include but are not limited to:

- assistance with detail development during the construction phase for elements not addressed or co-coordinated during the design phase.
- additional field-testing.
- field review of aesthetic and functional mock-ups and review of both the unique interface conditions and the general interface conditions.
- thorough review of submittals including shop drawings, mockups, sample constructions, project schedule and sequencing, and all building exterior enclosure components allowing for revisions as necessary.
- review of the contractor's and subcontractors' site-specific quality plans for the building exterior enclosure.
- pre-bid conference which is held including commissioning team, owner, and all consultants and building exterior enclosure specialists to discuss design intent, construction sequencing, constructability, and other issues

pertaining to the co-ordination and construction of the building exterior enclosure.
- aesthetic and functional reviews of mock up shop drawings, and accompanying submittals for all laboratory testing and field testing.
- periodic construction monitoring for quality assurance, particularly during critical events, such as roof transition and roof termination installation, initial installation of sealants, and the specific project interfacing conditions.
- inspection, testing, and witnessing, including field-testing specific to the project and detailed documentation.
- establishment of a training program for the owner's personnel for operations and maintenance of the building exterior enclosure.

Occupancy and Operations Phase

"The occupancy and operations phase of the commissioning process begins at substantial completion. As a minimum, the commissioning process activities begun at this point should continue through the end of the contractual warranty/correction period and ideally continue throughout the life of the facility. During the occupancy and operations phase, the on-going operation, maintenance, and modification of the facility systems and assemblies, and their associated documentation, are verified against the updated owner's project requirements." Excerpt from *Guideline 0-2005, Section 8.1.1*.

A program of continuous commissioning is recommended for the exterior enclosure systems to ensure the required level of performance is maintained by monitoring the acceptable performance of key components and assemblies.

At this phase, the commissioning authority's involvement is primarily to verify the accuracy of the documentation record and manuals relative to the performance of the completed exterior enclosure including:

- operations and maintenance manuals;
- manufacturers conformance records;
- functional performance test records;
- record drawings;
- systems manual;
- commissioning report;
- documentation review;
- exterior envelope preventative maintenance program including cyclical verification of exterior enclosure components to the original manufacturer's maintenance recommendations and performance specifications with consideration for warranty enforcement; and
- additional documentation and verification as specified in the owner's project requirements.

The activities described below assume that the commissioning process has progressed through the activities defined for the pre-design, design, and construction phases. A commissioning process that begins during the occupancy and operations phase is termed "retro-commissioning" and is substantially different from the process described herein. The retro-commissioning process is not within the scope of this Guideline.

Occupancy and operations phase commissioning process activities for exterior enclosure systems are based on owners project requirements. See *ASHRAE Guideline 0-2005, Section 8.2.1*, plus the additional items listed below:

- verification of pre-design cost benefit analysis to actual performance of completed processes accepted by the owner;
- sustainability analysis verification;
- IAQ performance using relevant ASHRAE standards;
- guarantee/warranty enforcement matrix;
- comfort performance verification (using *ASHRAE Standard 55-2004*) for all types of space uses, based on the owners project requirements;
- conformance to standards and codes references in construction documents and systems manual; and
- documentation that the completed process meets the level of quality established in the owner's project requirements. See *ASHRAE Guideline 0-2005, Section 8.2.2 - 8.2.6*.

All types of exterior enclosure systems will migrate from performance levels established at the time of final acceptance. Materials used in construction have varied lifecycles and preventative maintenance requirements.

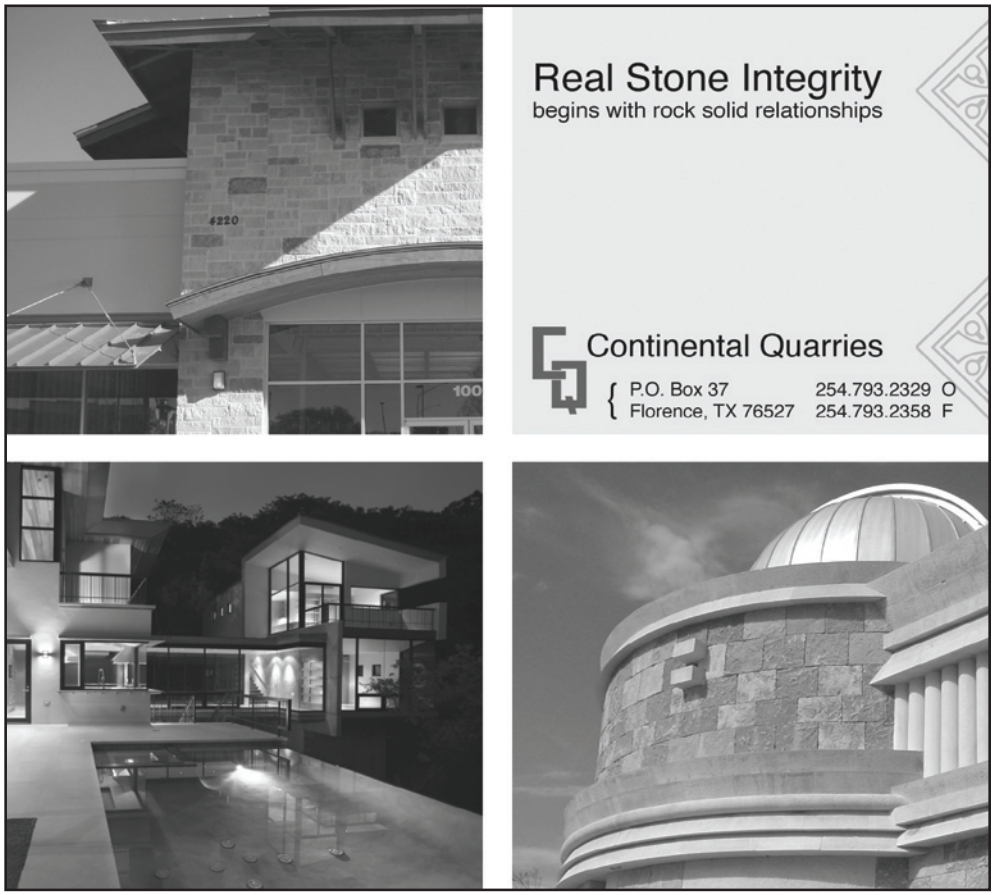
Training during occupancy and operations phase should be to the level defined in the owner's project requirements as implemented at the time of substantial completion. As a minimum the occupancy and operations phase training sequence should contain a role and responsibilities matrix based on information contained in the operations and maintenance manuals.

Conclusions

NIBS *Guideline 3 2006* has infinitely more detail and guidance than summarized above—it is a 350-page document including extensive annexes that provide sample documents and case studies, and is an extremely rich resource for use in the total commissioning process. It is anticipated that its use will result in a rigorous process of commissioning the building enclosure that should result in more durable building enclosures and higher performance buildings. *Guideline 3* may very well establish a new standard of care for the building enclosure in the design and construction industries.

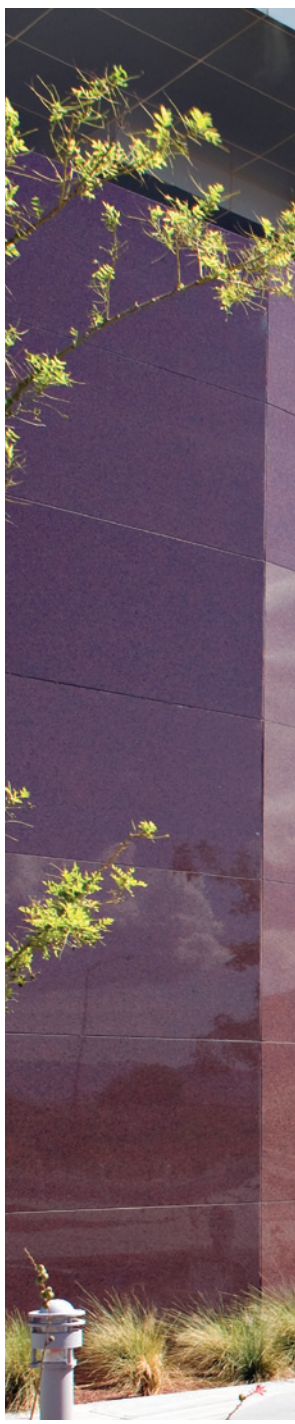
For a list of credits and references, access *www.nibs.org/JBED/JBED_Winter08.pdf*.

Wagdy Anis, FAIA is a principal with Wiss, Janney, Elstner Associates in Cambridge, MA. Anis is a LEED accredited professional and is chairman of the Building Enclosure Technology and Environment Council, board member of BEC Boston, ABAA, and chairman of the energy advisory committee in MA. Anis provides building enclosure consulting services.



PROJECT Microsystems Laboratory Building, Albuquerque
CLIENT Sandia National Laboratories
ARCHITECT Jacobs (formerly Carter & Burgess, Dallas)
DESIGN TEAM Steven Tremmel, AIA; David Day, AIA; Timothy Norton, AIA; Paul Maute, AIA; Mark Daniels, AIA; Robert Manley, AIA
CONTRACTOR Hensel Phelps Construction Co.
CONSULTANTS Jacobs (MEP/FP); Chavez-Grieves Consulting Engineers (structural); Bohannan Huston (civil); Sites Southwest (landscape); Curtain Wall Design and Consulting (curtain wall); PMK Consultants (acoustics)
PHOTOGRAPHER J. Brough Schamp Photography

RESOURCES **RAILINGS AND HANDRAILS**: Pikes Peak Steel; **ARCHITECTURAL WOODWORK**: OGB Architectural Woodwork; **LAMINATES**: Wilsonart (OGB Architectural Woodwork); **ROOF AND DECK INSULATION**: DOW; **VAPOR RETARDERS**: Tyvek; **ROOF AND WALL PANELS**: Alucobond; **COMPOSITE STONE PANELS**: Stone Panels; **METAL AND WOOD DOORS AND FRAMES**: The Hallgren Company; **SKYLIGHTS**: Naturalite; **GLASS**: Viracon; **GLAZED CURTAINWALL**: Kawneer; **ACOUSTICAL CEILING**: Armstrong; **WALL COVERING**: TRI-KES; **PAINTS**: Kwal; **CARPET**: Interface; **STONE FLOORING**: Vernon Tile; **TOILET ACCESSORIES**: Bradley; **BLINDS**: Bali



Standout at Sandia

by ROGER SCHLUNTZ, FAIA

Sandia National Laboratories, a sprawling complex on Albuquerque's southern edge, is itself located within the expansive Kirtland Air Force Base property. As the mission of Sandia is primarily related to national security, access to the facilities is tightly controlled. Projects – most are funded by the National Nuclear Security Administration, the Department of Homeland Security, and the Department of Defense – are conducted through a vast array of highly sophisticated research and development programs. Sandia's mission statement notes that its personnel are expected to create innovative, science-based, systems-engineering solutions to the nation's most challenging national security problems. Sandia's guiding principals for its science, technology, and engineering programs "ensure that the fundamental science and engineering core is vibrant and pushing the forefront of knowledge."

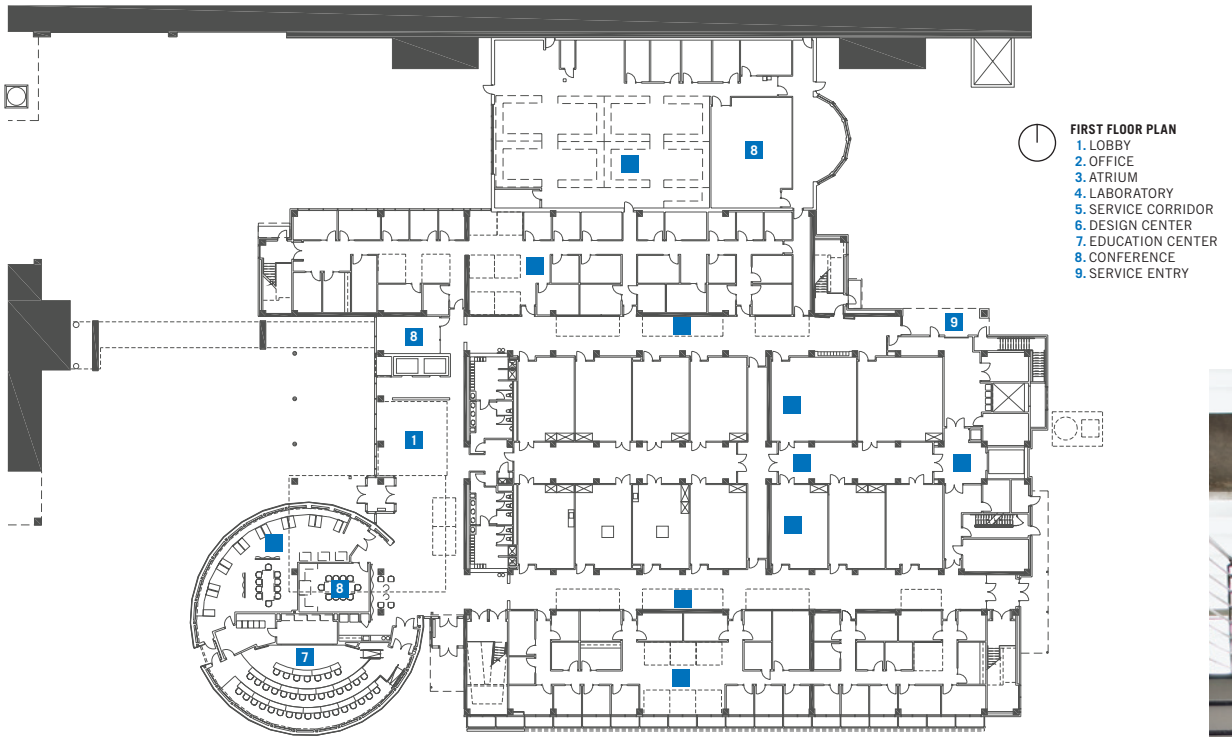
One might expect that the architecture of Sandia Labs, a place where revolutionary science is conducted, would be cutting-edge, embodying advances in building materials and technology while also expressing, in some revolutionary way, the metaphorical sense of the imponderable mysteries and esoteric efforts that reside within these edifices. For the most part, one would be wrong.

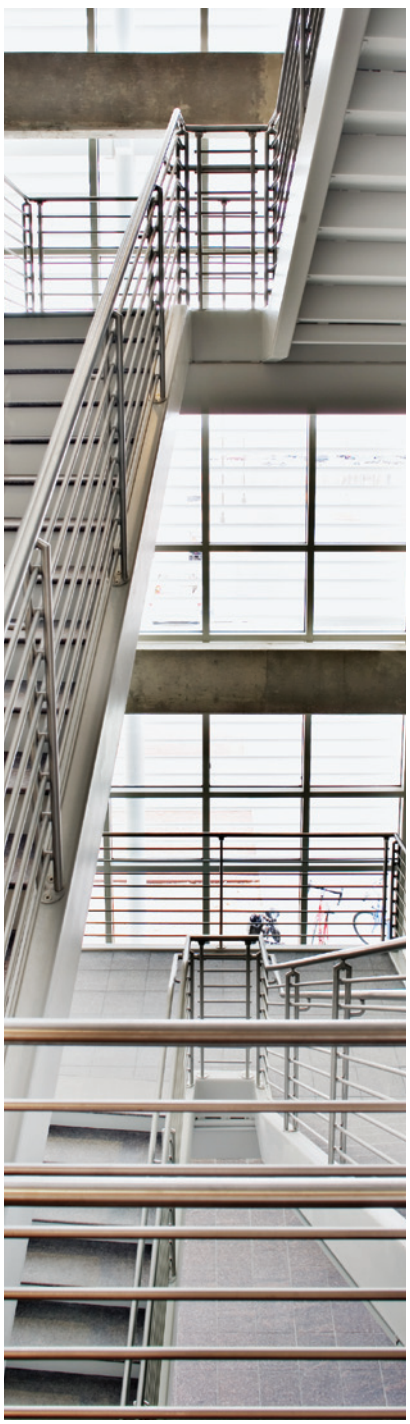
The majority of buildings at Sandia illustrate the reality of constrained federal budgets, yet even in this formidable stronghold of scientists and engineers several of the recently completed facilities convincingly demonstrate that the power of architecture as a means of supporting and enhancing intended human activity is evident, both functionally and aesthetically.

The Microsystems and Engineering Sciences Applications (MESA) complex consists of three buildings encompassing 400,000 sf of clean-room facilities, laboratories, and offices. One of these is the new Microsystems Laboratory Building, a key facility within the complex. Microsystems Laboratory, containing 130,000 sf and built at a cost of $57 million, was designed by Jacobs (formerly Carter & Burgess) of Dallas. The building is expected to provide the "facilities and equipment intended to design, develop, manufacture, integrate, and qualify Microsystems for the nation's national security needs." Beyond its apparent landmark status at Sandia, the physical environment of the Microsystems Laboratory must be competitive in attracting leading-edge scientists for critical positions. So too, the quality of the workplace is critical in retaining these highly sought employees. Similar in some respects to academic institutions of higher education, there is the presumption that the best creative efforts will happen through interaction. The Microsystems Laboratory Building is conceived on the principal necessity for providing technically advanced research space, but with the assumption that within this highly restricted facility there must be opportunity for both formal and informal engagement among its scientists.

In response, the basic planning concept provides the scientists' offices flanking either side of the central laboratories, with these labs symmetrically arranged internally along a service corridor spine that extends to the loading dock area. The three-story hallways that link the office modules with the labs are enhanced with skylights and casual breakout seating areas that are specifically intended to encourage informal contact, and thus providing the opportunity for serendipitous collaboration among the diverse specialists.

Designed as "hardened building" in response to the 1995 bombing of the Alfred P. Murrah Federal Building in Oklahoma City and the 9/11 terrorist attacks, the structure of the three-story Microsystems Laboratory comprises a concrete frame with an integral





three-foot-deep concrete waffle slab. Concrete shear walls are intended to resist horizontal loads from a possible earthquake or blast. Because of the precision required in much of the research activity, the building is also carefully engineered to resist vibrations from exterior events, as well as vibrations that might be transmitted from one lab environment to another.

Much to the credit of SNL, the Microsystems Laboratory Building is LEED Silver certified, with much of the construction encompassing recycled and regional materials. As are most of the antecedent facilities at SNL, the Microsystems Laboratory is oriented longitudinally along an east-west axis as a basic climatic/daylighting response to the high desert condition of the Southwest. But in this instance the glazing for the south-facing offices is protected by an eight-inch aluminum sunscreen that adds vitality to the facade and provides architectural expression missing in earlier Sandia facilities. And here the striking landscape plan effectively minimizes water consumption while also providing the requisite setback of the facility from the perimeter fence.

An education center (for staff training) and a modestly sized conference room are located adjacent to the lobby. The rotunda form of the education center visually adds prominence to this functional element, while also strengthening the facility's entrance within the context of SNL and the MESA complex. The rotunda's composite stone panel, with its dark granite appearance, provides a striking contrast with the openness and transparency of the lobby area. In the development of this primary facade element a composite aluminum panel is used for the rectangular conference room enclosure. Aluminum panels are also incorporated with the large entry canopy and the bridge to an existing building as well as a visual connection to the Weapons Integration Facility, a companion MESA building. Providing a foil for the glass backdrop of the three-story atrium lobby, the entry to the facility is further dramatized with slender, elegantly proportioned stainless steel columns.

The exterior curtain wall is outfitted with high-performance, low-E coated glazing. Throughout the facility finish materials reflect the budget limitations, blast criteria, and other project priorities. In the "public" areas of the facility, the concrete structural elements – beams, columns, and shear walls – are left exposed. Stainless steel and glass guardrails accent the primary interior lobby space, as well as maintain visual transparency. Elsewhere gypsum board with paint accent is used for interior walls.

Notwithstanding the basic "off the shelf" nature of the architectural materials, the design team was successful in its efforts in reflecting the basic mission and programmatic needs embodied in this New Mexican, high desert, research facility.

Roger Schluntz, FAIA, is dean of the architecture school at the University of New Mexico.

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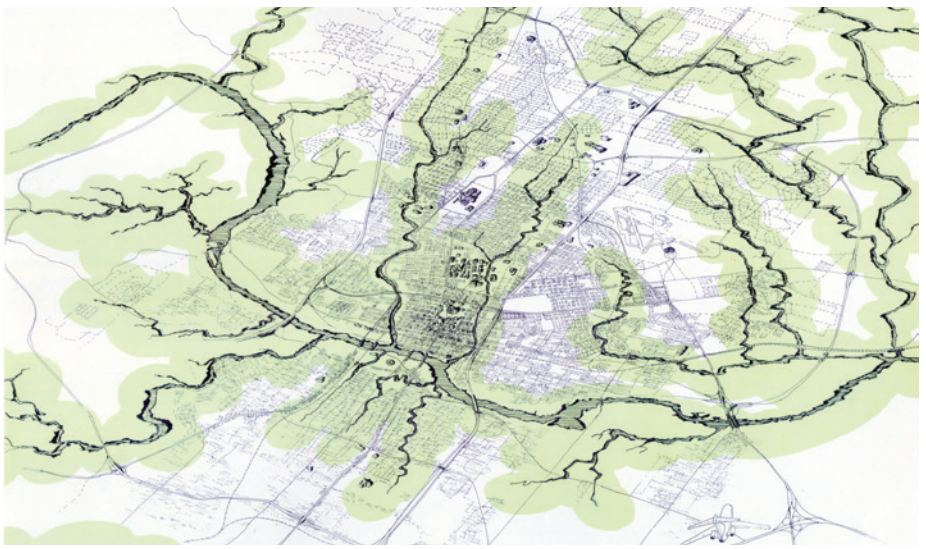
Continued from page 28

ton. Another, "The Texas Triangle Megaregion," forecasts the inevitable merging of those four cities, along with Austin, through interdependent environmental systems, a multimodal transportation infrastructure, and complementary economies in response to globalization.

The ample use of maps, charts, and photography to illustrate specific points and illuminate historical background help drive the various narratives and make for an overall pleasing transfer of data. While the multiplicity of voices and visual styles sometimes strain's this reader's ability to digest more than three or four articles at one sitting, the book's organization readily allows for repeated visits to delve into an array of issues affecting a microcosm of our twenty-first century world.

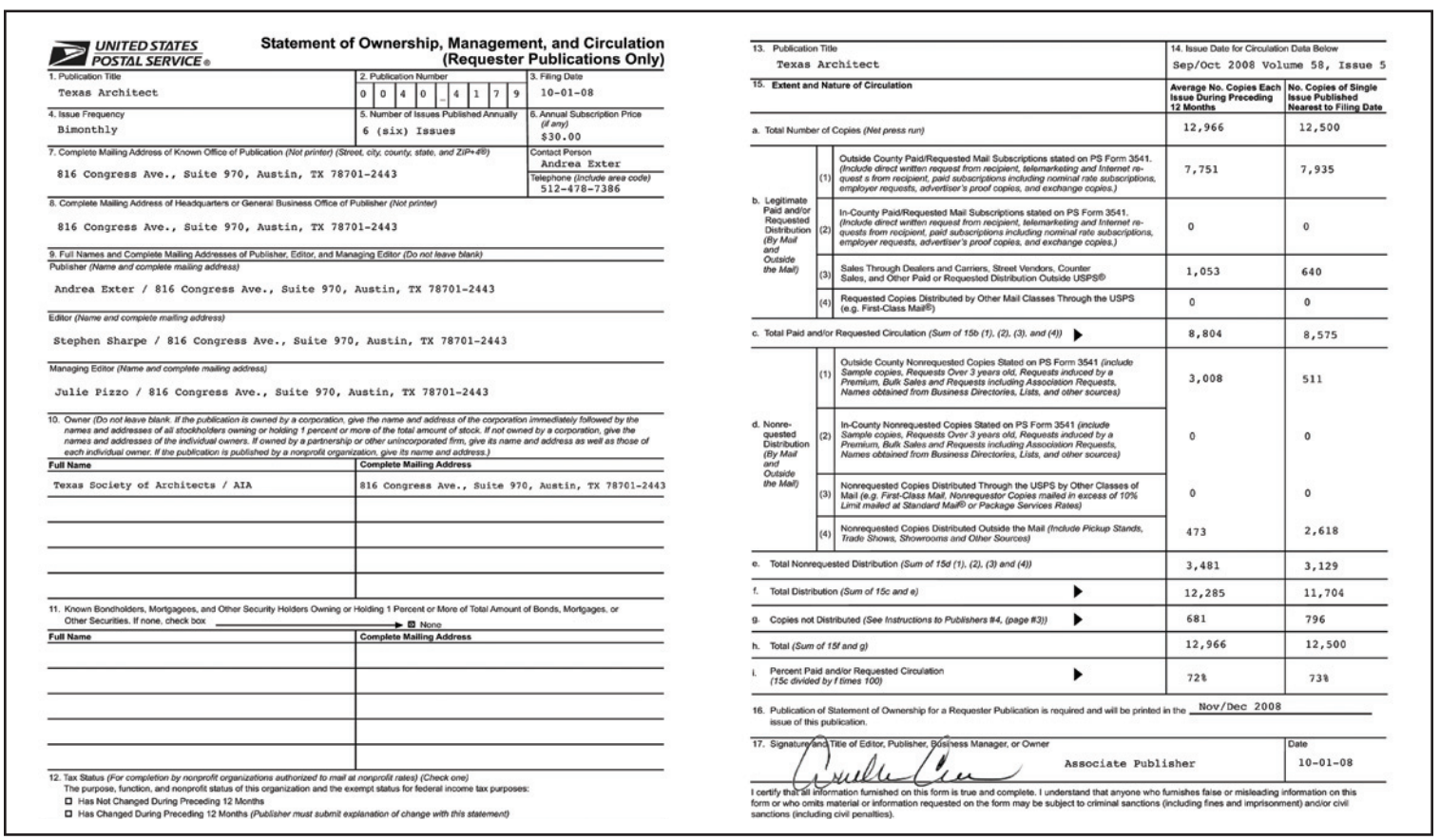
Emergent Urbanism rewards both the designer and the dabbler whose interests encompass everything from environmental protection and upscale commercial development to building codes and sustainability policies. Taken in parts or as a whole document, the book extends the knowledge of a dynamic region at a pivotal juncture when its destiny appears limitless and achingly hopeful. Perhaps the best consequence of its publication will the launching of innumerable discussions about the lessons other regions around the nation, and the planet, may learn from its past experience and its recent decisions affecting the vicissitudes of human activity in Central Texas.



Austin's network of creeks has encouraged protection of open space.

ILLUSTRATION COURTESY BLACK + VERNOOY

Emergent Urbanism is available through the UT Austin School of Architecture. Contact Judy Parker via *jparker@austin.utexas.edu* or call (512) 471-1922. Proceeds from book sales will support a scholarship program.



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Texas Firms Honored with AIA Small Projects Awards

Two Texas firms were honored with awards in the AIA 2008 Small Projects Awards. Candid Rogers of San Antonio received two awards, one for the renovation of Casa 218, adding 960 square feet to the 1873-built home in San Antonio, and the second for the Marfa 10x10 light box, representing the smallest residence honored. Alterstudio of Austin was recognized for the renovation of the Hidden Cover residence on Lake Austin. The awards were restricted to structures and objects with budgets up to $50,000.

2008 IIDA Design Excellence Awards

The Texas Oklahoma Chapter of the International Interior Design Association (IIDA) recently honored several Texas firms with its 2008 Design Excellence Awards. The Corporate Award went to Ziegler Cooper Architects of Houston for the Wachovia Executives project in Houston. The Hospitality Design Excellence Award honors international firm Page Southerland Page for the Grove at Discovery Green in Houston. HOK of Houston won in the Sustainable category for a project for an undisclosed energy client in New Orleans. The Retail Design Excellence Award went to Dallas-based RYA Design Consultancy for the design of the Shinsegae Main Store in Seoul, Korea. Honorable Mentions were given to Studio RED Architects of Houston and Gensler of Dallas. Valla Design Group of San Antonio, the ID Group in Dallas, and Gensler of Dallas were chosen for this year's Pinnacle awards, the highest honor bestowed by IIDA.

Frontier Texas! Wins Landscaping Award

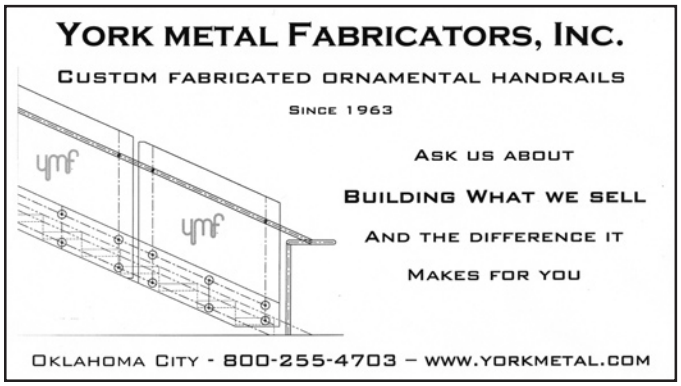
The Texas Chapter of the American Society of Landscape Architects presented Abilene's Frontier Texas! Museum with the 2008 Award of Excellence. Dallas-based landscape architect Christopher Miller designed the 6.4 acre-site with a particular focus on preserving and reflecting a sense of the local Texas spirit.

UTSA Introduces New Masters Program

The University of Texas at San Antonio has added a new Master of Science degree in construction science and management. The program, which focuses on the managerial aspects of the development and construction industry, was created by the College of Architecture in conjunction with the College of Business, and is meant to complement the undergraduate construction science degree. Students are offered courses in real estate finance, investment and development, as well as international practice and advanced construction management. Members of San Antonio's real estate community are slated to give guest lectures, offer internships and mentorships for enrolled students to provide firsthand, real-world experience.

New LEED Reference Guide Released

The USGBC has published the highly anticipated *LEED for Existing Buildings: Operations & Maintenance Reference Guide*. The guide is aimed towards building owners, managers, and industry practitioners and includes information on recertification, performance periods, multi-tenant issues, and suggestions on ways to build with minimal environmental impact. The manual also includes summaries of reference standards, calculation methods and formulas, and section overviews for each credit category and number of points per credit. In 2009, *LEED for Existing Buildings: Operations and Maintenance* will be incorporated into a new version of the reference guide, including updated point and percentage scales.



Offbeat and Off the Grid

An enterprising family teaches high-tech self-sufficiency by example

by GERALD MOORHEAD, FAIA

MORE MAKESHIFT ENGINEERING THAN DESIGN, A collection of shiny corrugated metal buildings along State Highway 71 between Columbus and Ellinger has been expanding for about a year. Welcome to the Industrial Country Market.

Although the 45-acre property being developed by the Bretch family has a 1,000-foot frontage on the highway, they are resolutely committed to off-the-grid self-sustainability through power generation, food production, and educational and recreational activities for the whole family—theirs and everyone else's. Already in place are sun-tracking solar panels supplying a battery storage facility, a wind generator, an art gallery and woodworking shop, two greenhouses, raised beds for vegetables, and water storage tanks. A large "non-general" store sells Texas artisanal goods (among other things). The green roof of the power building has already produced crops of oats and wildflowers.

As a "playground for the whole family," the diversity of amusements will include horticulture, woodworking, art classes, and, of course, lessons on green topics—power generation, water conservation, composting, and reclaiming resources. And, don't forget, wholesome shopping.

The Bretchs' approach to sustainability sounds like a twenty-first-century *Whole Earth Catalog*, the digital version, but still home/handmade, without professional advice. They want to "repurpose the world," meaning everything is secondhand, salvaged, found on eBay: lots of excess corrugated metal sheets from a construction site, surplus skylights put to use as windows, wood trusses from a defunct home builder, cedar posts and timbers collected from neighborhood ranches and milled on site, power components acquired from a divorce settlement (someone else's). The ad hoc appearance of the structures results from these materials not being used for their intended purpose but "repurposed."

All this dreaming and building is motivated by a grassroots-level appreciation for the need to control one's impact on the planet and to teach others the way. What the Industrial Country Market lacks in design finesse (for example, the composting toilets are located at the front door to the market and flashing conditions are problematic throughout) and construction craft, it makes up for in determined self-reliance and almost evangelical zeal.

Gerald Moorhead, FAIA, is a *Texas Architect* contributing editor.

PHOTO BY GERALD MOORHEAD, FAIA

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